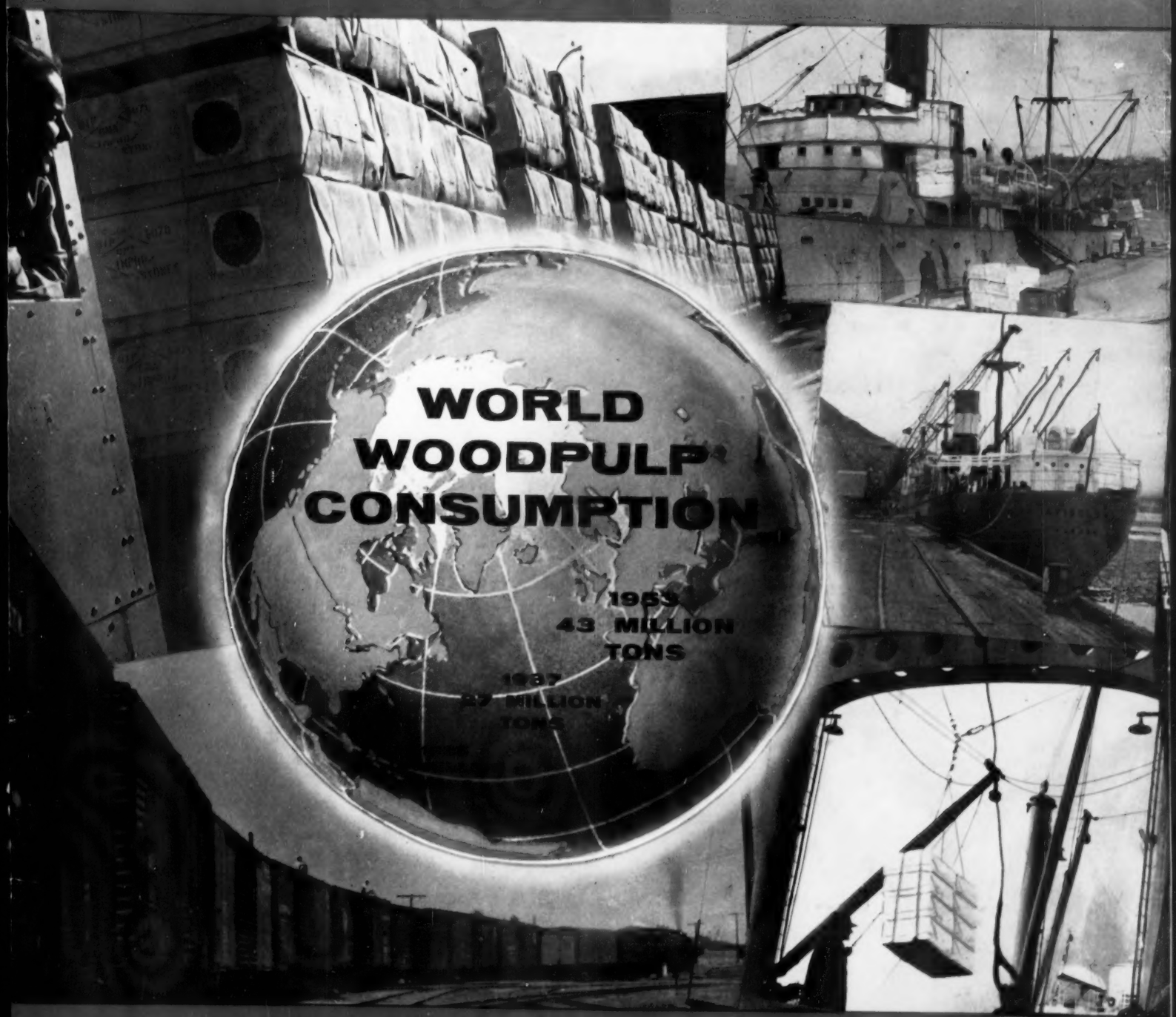
PULP & PAPER

WORLD *Review Number*

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. . . 48 vs. 4 Million Tons page 110

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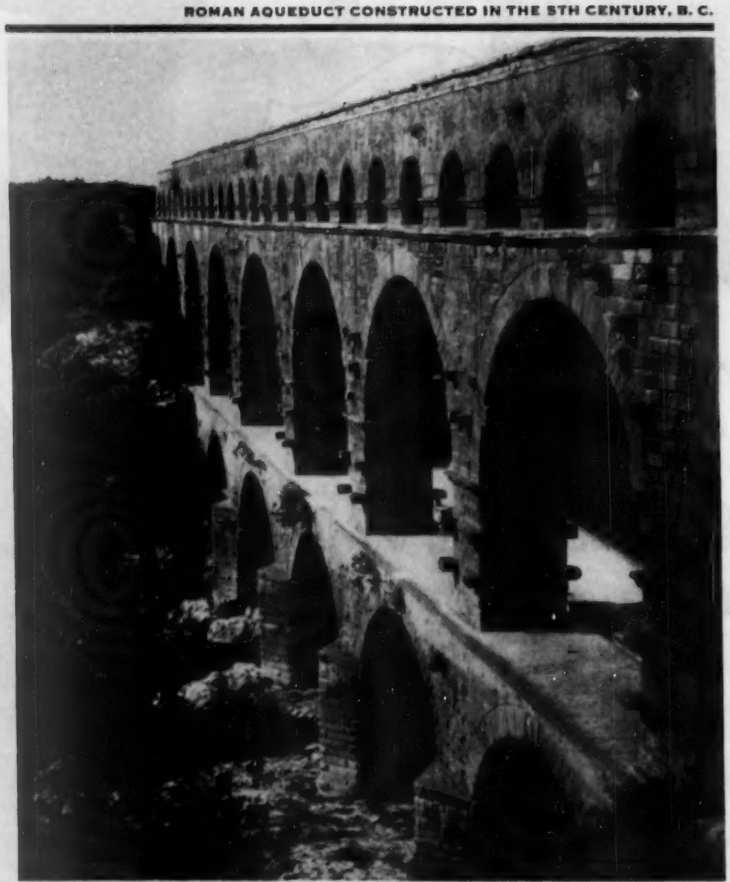
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PULP & PAPER

Production and Management Magazine of the Industry

July 25, 1954
Vol. 28—No. 8

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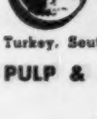
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COMMENT

Here's How U.S. Government Could Help Free Nations Abroad and Home Industry

This is the annual WORLD REVIEW NUMBER, a unique and valuable year-around reference issue of PULP & PAPER, and so it seems fitting that we offer a suggestion helpful to friends both home and abroad.

President Eisennower's Foreign Operation Administration is trying to give a real push to investments abroad by U.S. capital. The objective—new industries in Latin American countries, in India, other Asiatic countries, in Portugal, etc. The bait is a plan to reduce foreign income taxes.

What kind of investments? Pulp and paper mills are reported to be No. 1 on the list. Chemicals, iron and steel, are next. This industry, as reported in PULP & PAPER early this year (p. 44, Apr. 1954 issue), has been having a hard time getting any kind of information from Harold Stassen and his FAO on how much U.S. taxpayers' money is going into pulp and paper mills abroad. This plan for private investment, however, would be quite different. Secretary of Commerce Weeks assured this industry's leadership that it would—hereafter—be advised in advance if there is any possible use of taxpayers' money to set up *competitive* industries abroad.

The suggestion we offer, however, is this:

Why not set up papermaking and converting mills, also cellophane, rayon, tire cord, acetate, and similar plants that would use imported woodpulps?

North American mills, as well as European, now seek foreign customers—they have the forest resources and they have up-graded their pulp products and increased their market pulp capacities.

Need we dwell on the vital importance of a strong North American pulp industry as a defense measure for the free world? There was proof enough in World War II from V-boxes to the pulp that fired most army guns. Free world mills *must be far from the enemy.*

We believe that foreign nations which buy pulp—essentially a raw material; at least, only a semi-manufactured material—will be able to find the dollars to buy it, because they would be able to convert it to paper, paperboard, rayon, cellophane, etc., and greatly increase its value for their markets.

The increasing demand of European nations this year for woodpulp is proving that they can find the dollars for such a purpose. Britain and Continental Europe expect most of their increased needs for woodpulp in 1954 will come from North America.

The FAO and Economic Commission of the United Nations over a year ago released a report on European timber and pulp and paper outlooks which indicated Europe might expand production tremendously by "a dynamic forest policy." We have yet to find a really informed pulp man who agrees.

Only North America—of all the continents—can meet any greatly increased world demand *now.*

How to Convert Statistics in This Review Number

A short ton equals 2,000 lbs.; A metric ton equals 2,204.6 lbs.; Multiply metric tons by 1.1023 to obtain short tons; Multiply short tons by .90718 to obtain metric tons; A kilogram equals 2.2046 lbs. (there are 1,000 kilos in a metric ton; 2,000 lbs. in a short ton); Multiply a kilogram by 2.205 to obtain pounds; One cord equals 2.55 cubic meters (a meter equals 39.37 inches), or 90 cu. ft. of wood, not counting air space. But usually wood and air space are counted, which would be 128 cu. ft. or 3.62 cu.m.; A hectare equals 2,000 square meters, or 2.47 acres; two cords are generally accepted as equal to 1,000 bd. ft.

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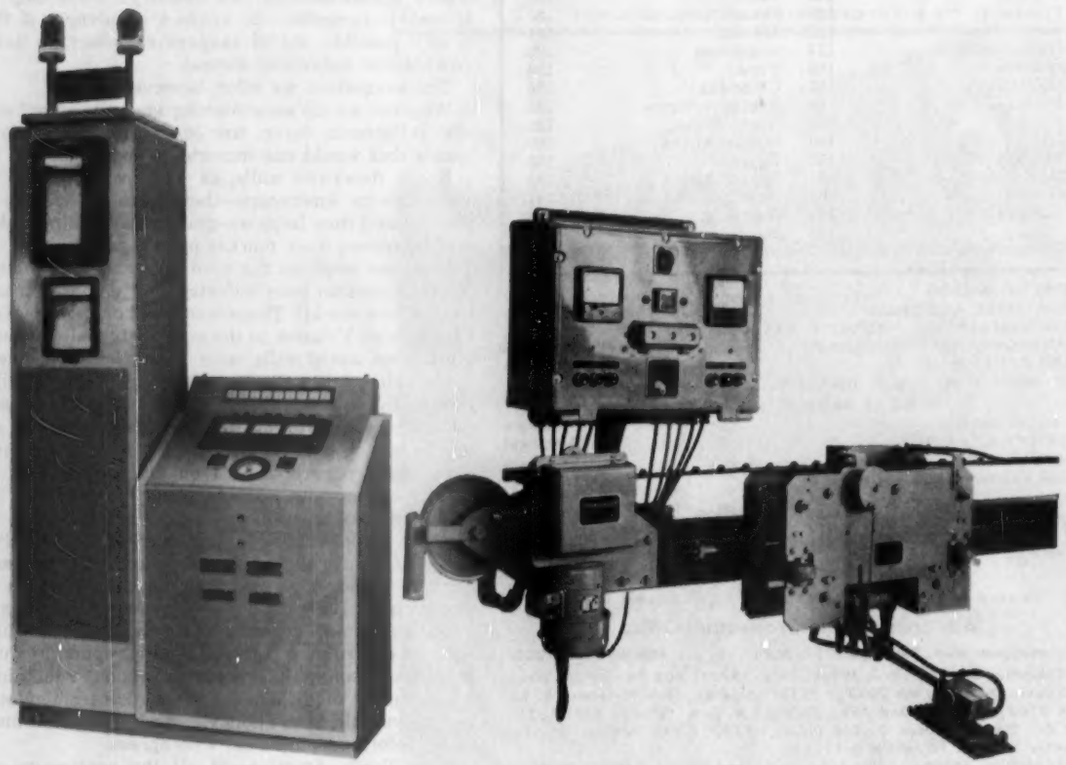
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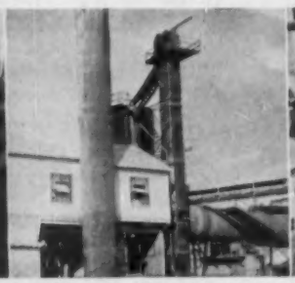
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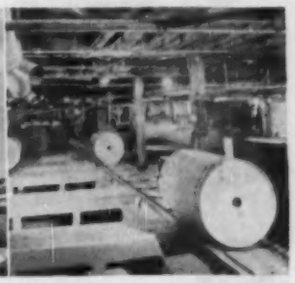
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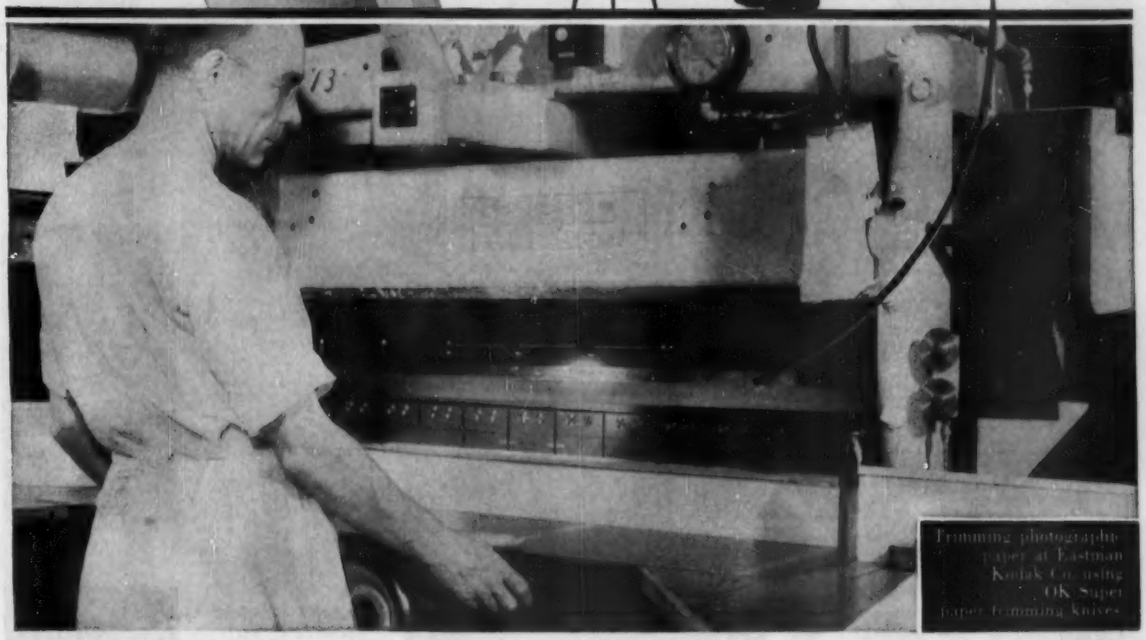
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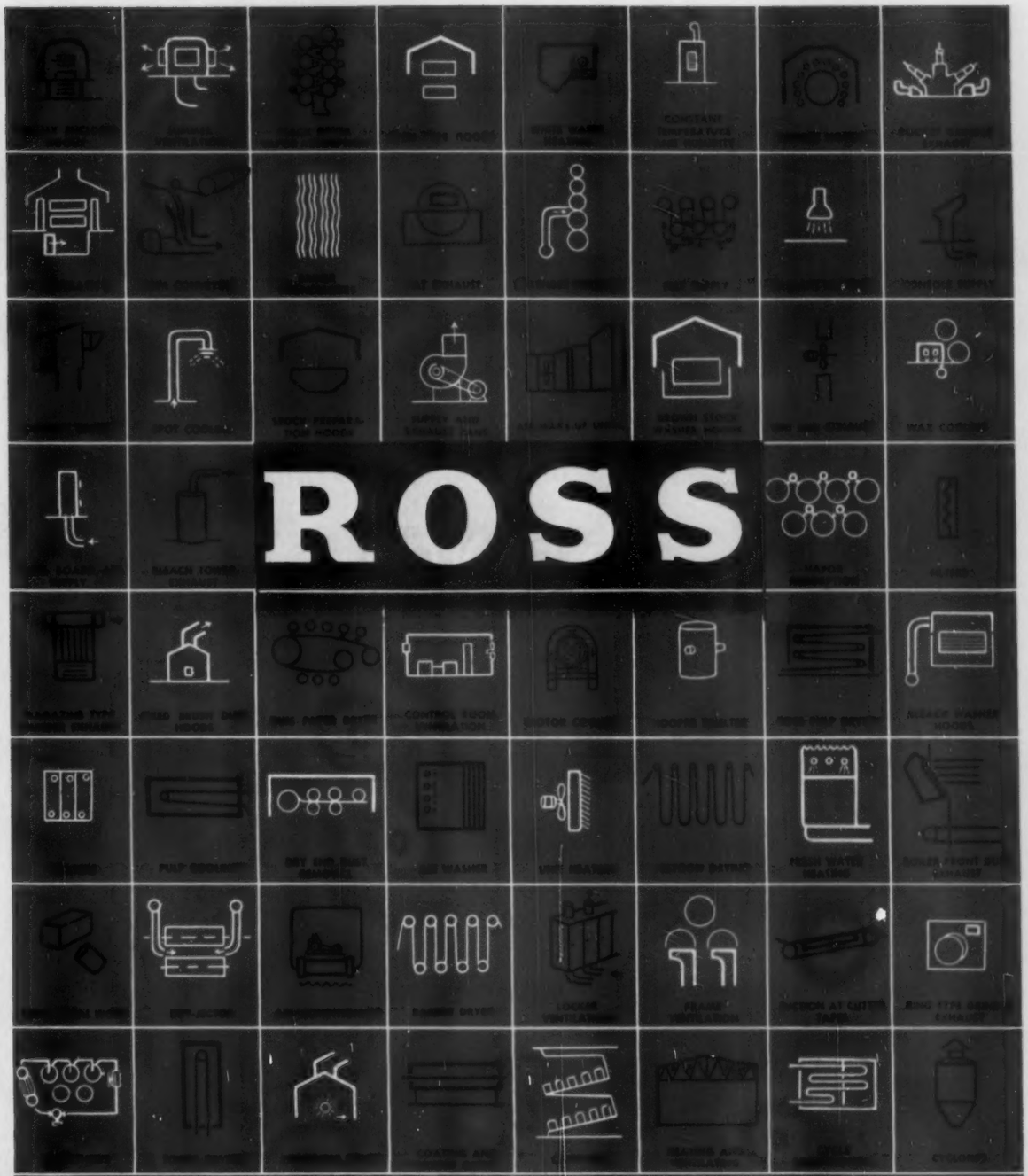
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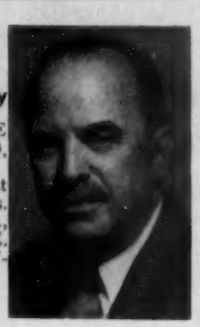
Industry Organizations and Leaders . . . continued

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GEORGE E. DYKE (photo), *Chairman*. He is Pres., Robt. Gair Co. Inc. Assn. headquarters at 271 Madison Ave., N.Y.C. *Exec. Secy.-Asst. Treas.*, RUSSELL L. WINGET.

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MATHIESON CHEMICAL CORPORATION
Mathieson Industrial Chemicals Division
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2117

Industry Organizations and Leaders . . . continued

Western Michigan College Pulp and Paper Technology Department

DR. ALFRED H. NADELMAN (photo), *Head of Dept.* Kalamazoo.



Canadian Pulp and Paper Assn.

PAUL E. COOPER (photo), *Chairman.* He is President, Crown Zellerbach Canada Ltd., Vancouver, B. C. Assn. headquarters at Sun Life Bldg., Montreal, Que. *Pres.*, R. M. FOWLER; *Gen. Mgr.*, F. L. MITCHELL.



Technical Section, CPPA

J. B. JONES (photo), *Chairman.* He is Manager of Mfg., Ontario Paper Co. Ltd., Thorold, Ontario. Section headquarters, 3420 University St., Montreal, Que. *Exec. Secy.*, DOUGLAS JONES.



Newsprint Assn. of Canada

ROBERT M. FOWLER (photo), *President.* Assn. headquarters at 2280 Sun Life Bldg., Montreal, Que. *Secy.*, J. M. SAVAGE.



Woodlands Section, CPPA

J. H. MERRILL (photo), *Chairman.* He is Woods Mgr., Anglo - Canadian Pulp and Paper Mills Ltd., Quebec, Que. Assn. headquarters at Sun Life Bldg., Montreal, Que. *Manager*, W. A. E. PEPLER.



Pulp & Paper Research Institute

DR. LINCOLN R. THIESMEYER (photo), *President,* Institute headquarters, 3420 University St., Montreal, Que.



Canadian Trade Assn.

Headquarters at 159 Bay St., Toronto, Canada. *Exec. Secy.*, IVAN MOFFITT.



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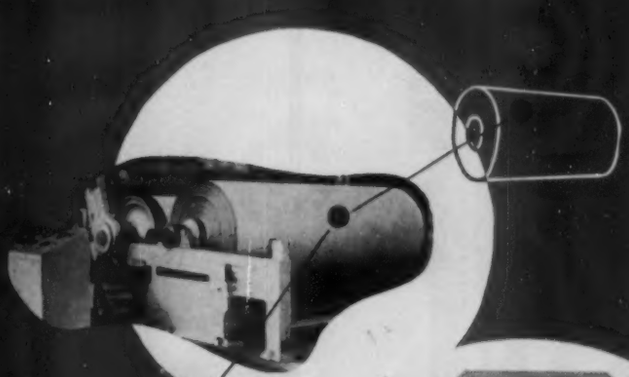
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Black-Clawson builds machinery for every single phase of the papermaking process. From conveyor to Hydrapulper, through the entire stock preparation system, complete paper machine from wire, or vat, to reel. All components are soundly engineered and precision fabricated to function together as a smoothly efficient team. You can benefit from the unequaled experience of this single source.

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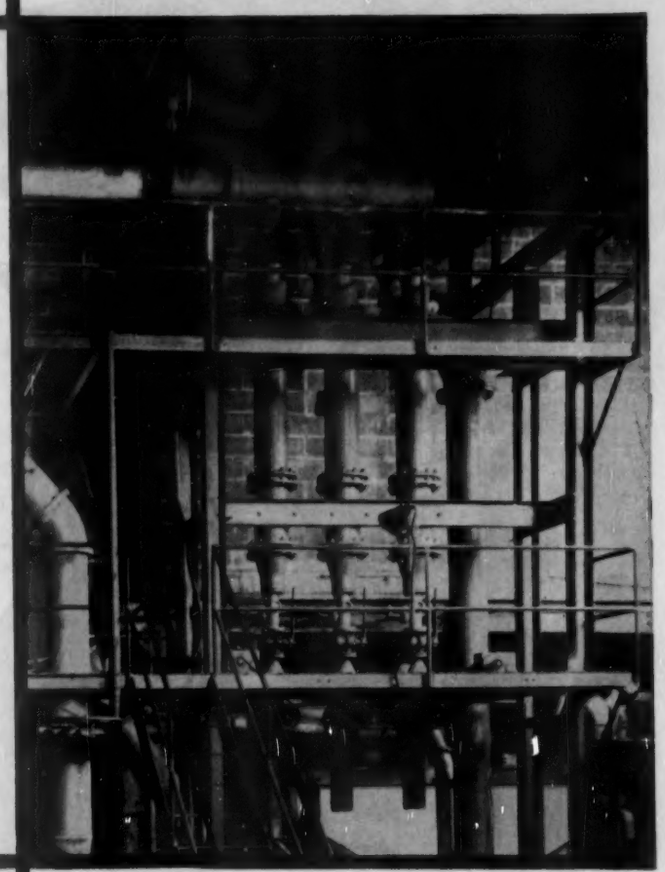
problem:
dirty Filler Stocks
solution:

VORTRAPS



Vortrap Check Points:

- ✓ Low inlet pressure—15 IPS
- ✓ Capacity 10" Vortrap approximately 50 tons per day.
- ✓ Low maintenance.
- ✓ Fibre losses ½ to 1½ # per ton.
- ✓ Automatic rejects handling.
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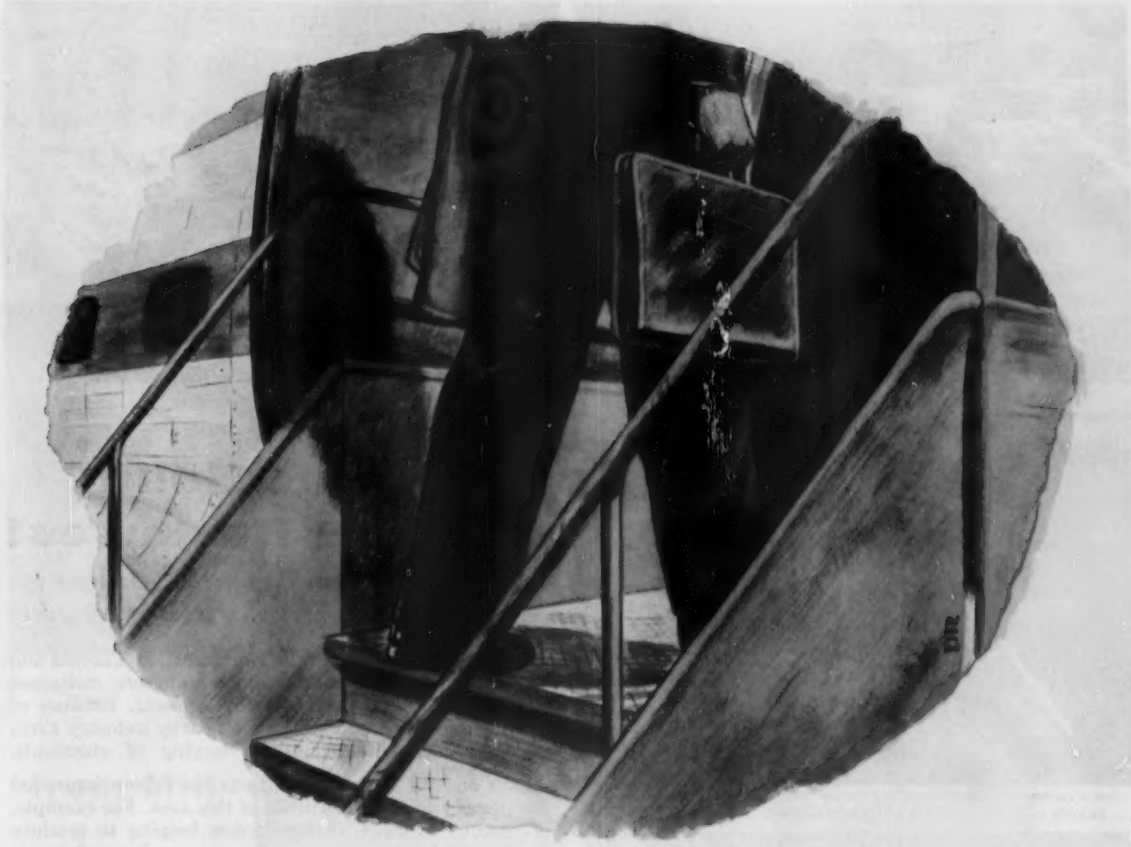
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Because a Paper Mill needed help...

Foam was causing the dandy roll in a midwestern mill to pick up large quantities of both water and stock. Called in for help, a member of Nopco's technical staff sprayed Nopco® KFS on the wire in a solution, one lb. per ton of paper. The stock ceased to pick up; the water was reduced to a fine spray. So impressive was the demonstration, they hastily called the firm's president from a conference to "come and see." Naturally, the mill has now standardized on KFS.

☆ ☆ ☆

The technical service men of Nopco's Paper Division have just one mission in life—to help you. They'd be excellent men for you to know.

It may well be that some obstacle in efficient sizing, or foam dispersal, or pitch control, which has your staff stumped right now, is one that our laboratory removed only last month for some manufacturer a thousand miles from you.

In the pilot plant in Nopco's Research Laboratories, these men work constantly (when they're "at home") on practical problems submitted to them from mills the country over. They don't know all the answers yet, but they have helped many mills to produce a better sheet of paper, at lower cost.

Nopco was founded on research. It has grown to its present position by research—which simply means finding new and better ways to do things which need doing. But the knowledge thus gained, after all, does us little good until we share it with you. Our technical men are our medium of sharing it. Put your toughest problem up to them. Why not do it today?

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LOOK TO NOPCO ALSO AS YOUR SOURCE OF SUPPLY FOR:

Foam Killers • Sulfated Oils • Wax Emulsions and Emulsifiers
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These Pennsalt Plants at Portland, Ore. (left) and Tacoma, Wash.



New Weyerhaeuser Timber Co. mill at Everett, Wash. Photo courtesy PULP & PAPER
. . . supply industry in the Northwest with basic chemicals . . .



Bonneville Dam. Photo courtesy Bonneville Power Administration, Portland, Oregon
. . . made with the help of Hydro-Electric Power . . .



. . . and utilize all types of bulk transportation to "deliver the goods"

Helping to Build the Northwest

How Pennsalt, a basic chemical manufacturer has become an integral part of a great growing area

With two busy plants in the Northwest, at Tacoma and Portland, Pennsalt has long been an active, dedicated contributor to this region's development. Because of their location, these plants save nearby industry time, trouble, and expense in the buying of chemicals.

Many current Pennsalt products have been improved specifically to meet the needs of this area. For example, Pennsalt Sodium Chlorate is now helping to produce better, whiter pulp.

Handling methods, too, have been tailor-made to the Northwest: Pennsalt ships its products in drums, tank cars, tank trucks, barges—by whatever means best serves the customer.

The Company has also developed numerous basic chemicals and chemical specialties required by Northwest industries. For example, Pennsalt insecticides are widely used by apple growers.

Pennsalt's success is in no small way dependent on the region's vast resources. The Company extensively uses hydro-electric power, and the nearby ocean, through solar salt beds, provides an essential raw material.

And yet, with all its accomplishments, the Northwest is young. In coming years it will grow and prosper in a thousand ways. Pennsalt intends to contribute to that future in every way possible.

Pennsalt Chemicals

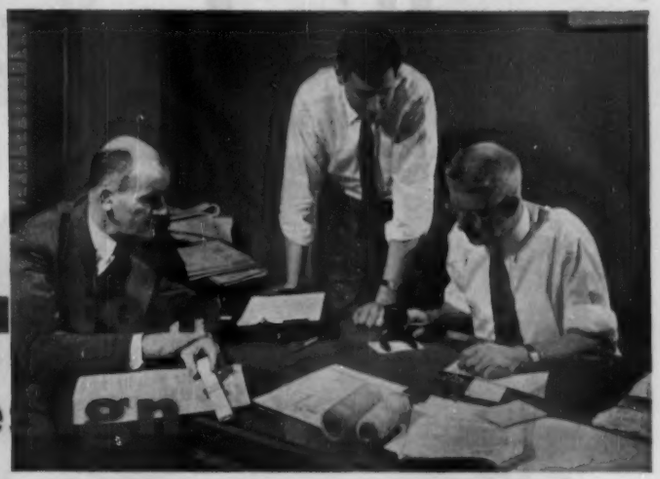
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Berkeley 4, Calif.—Ashberry 3-2537 • Portland, Ore.—Atwater 7655
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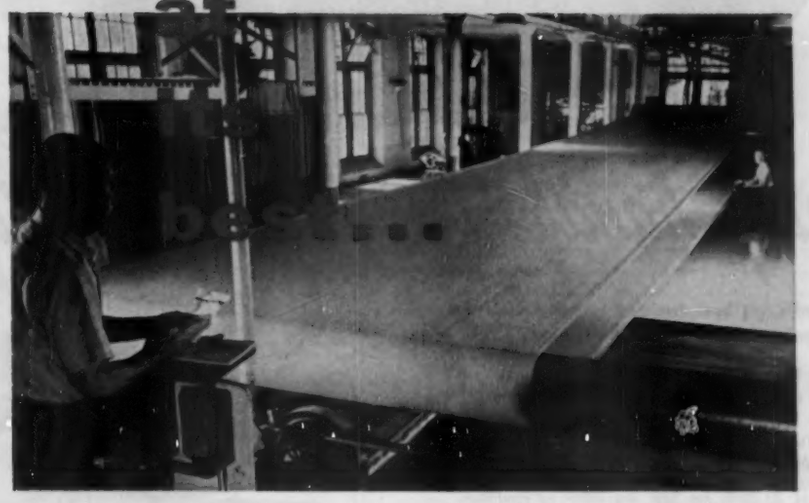
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The Huyck custom design operation is sparked by a Huyck field serviceman. Experienced and capable, he works with you on your felt requirements, then transmits this exact information to the Huyck designers.

Nine designers analyze all the requisites for each felt Huyck makes for you. Every element of its construction is tailored exactly to the specifications which will suit your machine precisely — to provide maximum efficiency at lowest cost per ton.

Consider service carefully when you buy felts: it must always be complete and dependable. As the Huyck service record proves, Huyck felts — with Huyck service — mean better production and lower costs for you.

Introducing

the Impco barker

Completely Automatic



IMPCO

Easily handles irregular shaped logs!

The Impco Barker has been developed to meet today's high bark removal requirements combined with low wood loss.

It is available as a stationary unit for general wood yard barking or as a portable unit mounted on a heavy frame equipped with tires for highway towing. The mobile unit can be furnished with a self-propelling drive for moves between barking sites.

Capacities up to 20 cords per hour depending on conditions, size and type of wood can be expected.



SPECIFICATIONS:

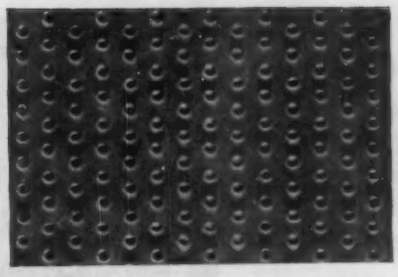
Wood size—4' to 8' in length
4" to 18" in diameter
Feed Rate—30 to 120 f.p.m
Infeed and Outfeed Conveyors—Automatic, self-centering, self-sizing
Barking Tools—6 springloaded—automatic sizing for variable log diameters
Bark Discharge—Mechanical ejection
Drives—Gasoline or electric powered

IMPROVED
MACHINERY INC.
NASHUA, NEW HAMPSHIRE

Sherbrooke Machineries Limited, Sherbrooke, Quebec Manufacture similar equipment in Canada

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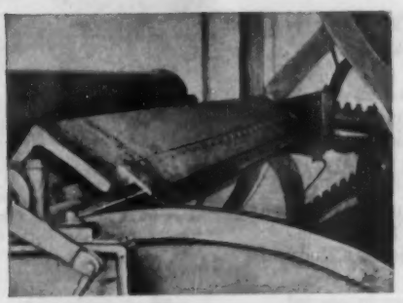
Screen Plates



Efforts to find screen plates with non-enlarging perforations led to trial of thin-gauge Inconel by a Western manufacturer of book groundwood whose plates were corroding beyond use in less than 5 months. This is one of four original plates of .018" Inconel with .045" perforations, photographed after more than 36 months of continuous use. The mill found "no . . . measurable enlargement of the perforations . . ."

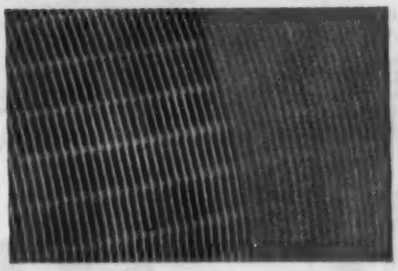
Are replacements costing you TOO MUCH?

Doctor Blades



"K" Monel doctor blades. The mirror-like appearance of the roll itself shows how well the "K" Monel doctor blade on this dryer protects the surface. Even when operated continuously, "K" Monel blades require a minimum of regrinding. Blade surfaces do not rust, and they resist roughening and damage from corrosive paper stocks, sours, cleaners and chemicals.

Winding Wire



Monel winding wire is used over structural rods of cylinders, over drainage strips of drums, and as binding wire over wire cloth faces of filters. Available with a tensile strength as high as 140,000 psi, Monel wire can be wound on its own diameter without fracture. It possesses high resistance to fatigue under corrosive conditions, gives from 2 to 15 times the service obtained from other materials.

You can be sure of this: frequent replacements always cost too much.

For frequent replacements can be avoided.

You find that out when you use Inco Nickel Alloys like Monel, "K" Monel and Inconel. They last longer (and require less maintenance) because they resist corrosion, abrasion and wear.

And you save money in at least three ways. Here's how you figure it:

On every replacement that you *don't* have to make, your first saving is the *price of materials.* Then you save the entire cost of *labor for installation.* And your third saving is the value of *production ordinarily lost* during downtime.

Count your downtime for honing and grinding doctor blades, too. That has to be done periodically, no matter what blade material you use. But "K" Monel runs longer between regrinds, and helps cut downtime to a minimum.

Inco Nickel Alloys hang up excellent performance records on jobs where many materials find the going rough. You can easily prove this. Just try a replacement part of Monel, "K" Monel or Inconel on machines that are hard hit by corrosion and wear. Then watch how they stand up!

If you'd like advice and help in picking the right metal for any corrosive pulp, paper or board mill job, don't hesitate to call on us. If you don't have your copy, write to us for *Practical Solutions for Metal Problems in Pulp and Paper Mills.* You'll find the revised illustrated edition of this handy booklet a valuable source of information.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York 5, N. Y.

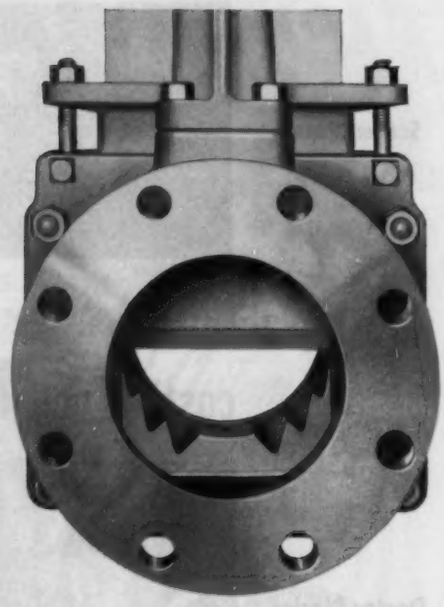
Inco Nickel Alloys

Monel® • "R"® Monel • "K"® Monel • "KR"® Monel • "S"® Monel
Inconel® • Inconel "X"® • Inconel "W"® • Incoloy®
Nimonic® Alloys • Nickel • Low Carbon Nickel • Duranickel®

Shear MAGIC

by CRANE

cuts pulp handling costs



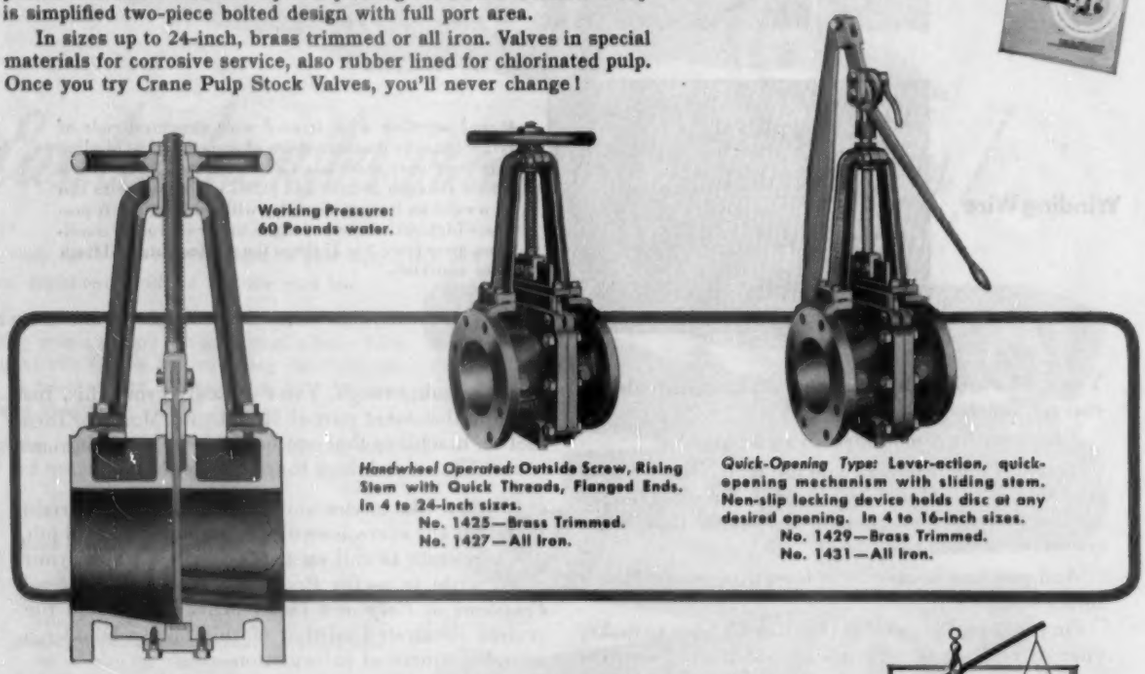
You're looking into the inlet end of the Crane Pulp Stock Valve. Those notches and the knife-edge disc assure you of better stock control . . . and minimum maintenance. Here's why. As the disc closes, pulp fibers are neatly "combed" into small bunches by the notches—while the cutting end of the fully-guided disc easily shears the successive bunches. There's no jamming of fibers under the disc—and when the valve is closed, wood pulp packs itself around the disc to seal against leakage.

In the cross-section below, note the absence of a bonnet. In fact, there's no area in these Crane Valves where stock can become impacted and cause trouble. Special packing minimizes friction. Body is simplified two-piece bolted design with full port area.

In sizes up to 24-inch, brass trimmed or all iron. Valves in special materials for corrosive service, also rubber lined for chlorinated pulp. Once you try Crane Pulp Stock Valves, you'll never change!

Full facts in Folder AD-1908. Get a copy from your Crane Representative next time he calls—or write direct.





Working Pressure: 60 Pounds water.

Handwheel Operated: Outside Screw, Rising Stem with Quick Threads, Flanged Ends. In 4 to 24-inch sizes.
No. 1425—Brass Trimmed.
No. 1427—All Iron.

Quick-Opening Type: Lever-action, quick-opening mechanism with sliding stem. Non-slip locking device holds disc at any desired opening. In 4 to 16-inch sizes.
No. 1429—Brass Trimmed.
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THE 3 BASIC TREATMENTS IN YOUR STOCK PREPARATION

EACH STOCK requires one or more of these basic treatments.

EACH MORDEN MACHINE is engineered, standardized and proven in one of these basic treatments.

EACH MILL'S requirements suggest various applications.

OUR EXPERIENCE in assisting mills to develop simple, effective and economical stock preparation systems is available to you upon request.



MORDEN SLUSH MAKER®

...for completely defibering all pulps, papers and broke (even wet strength) without auxiliary equipment.



MORDEN STUFF MAKER

... for cutting or shortening where required to obtain specific sheet properties.



MORDEN STOCK MAKER®

...for brushing, fibrillating and hydrating individual fibers for maximum strength development.

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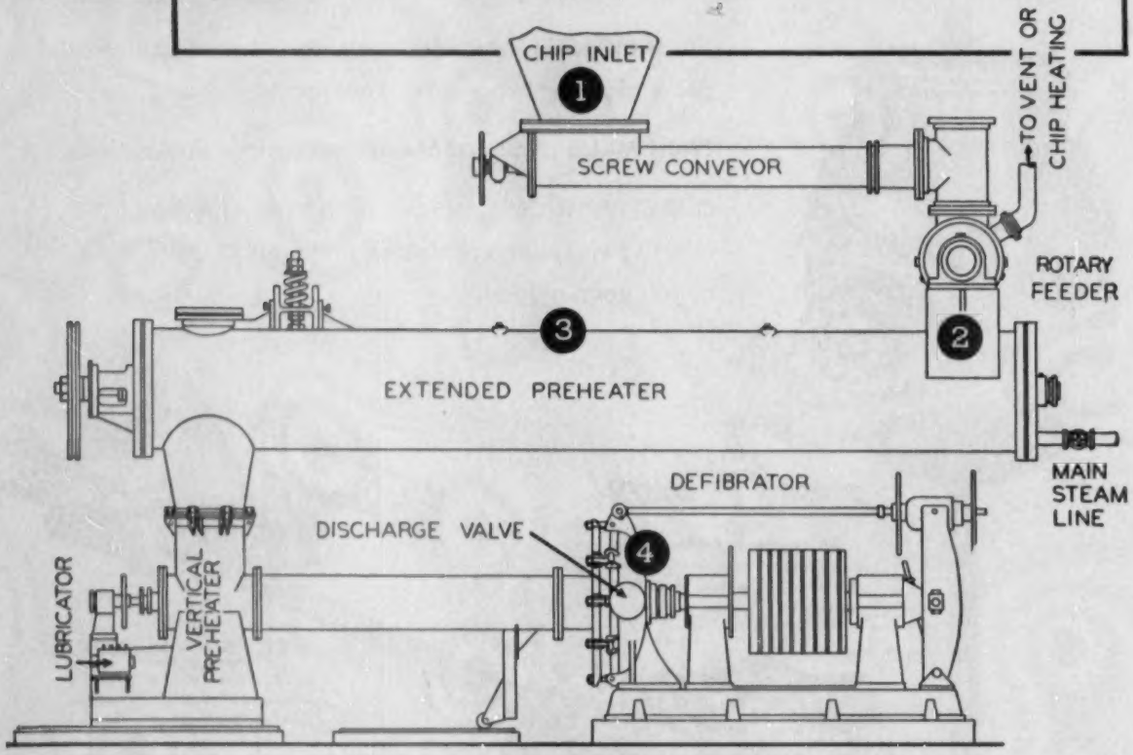
Other Representatives in most paper-making countries.

Mill-Demonstrated Continuous Pulping

SEMICHEMICAL • NONCHEMICAL

GIVES UNIFORMITY • HIGH YIELD

SAVES POWER • STEAM • LABOR • MAINTENANCE



1 Drained, pre-soaked chips enter here.

2 Rotary feeder, developed by American Defibrator, provides steam seal against pressures up to 150 psig. with no plug forming or blow-back. Chips are gravity fed without damage to fibers, change in moisture balance, or loss of liquor.

3 Chips are uniformly pressure cooked throughout as they are conveyed through the preheater, where time and temperature are controlled.

4 Softened chips are easily defibrated and pass through a blow valve to a cyclone where pulp is pumped to secondary refining.

Further details on request.

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ALBACEL

BLEACHED PINE SULPHATE
BLEACHED WITH CHLORINE DIOXIDE

Created by Papermakers for Papermakers

Albacel is a bleached pine sulphate . . . the cleanest pulp of its kind available from any source. Chlorine dioxide bleaching gives it outstanding strength and excellent brightness.

Albacel is produced at Riegel Carolina's new pulp mill at Riegelwood, N. C., with every refinement and control known to modern pulp manufacture.

Riegel Carolina Pulps

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Created by Papermakers for Papermakers

RIEGEL PAPER CORPORATION • 260 MADISON AVENUE • NEW YORK 16, N. Y.

FOR PULP STOCK



Clog-Proof Valve Operation on Stock Lines

Pulp stock won't clog this specially designed Walworth Pulp Stock Valve. There are no bonnet or body recesses where pulp fibers can accumulate. The sharp, hardened edge of the semicircular stainless steel gate shears through the pulp stock to a tight shutoff.



Walworth Fig. 757F
sizes 4 to 16 inches

WALWORTH

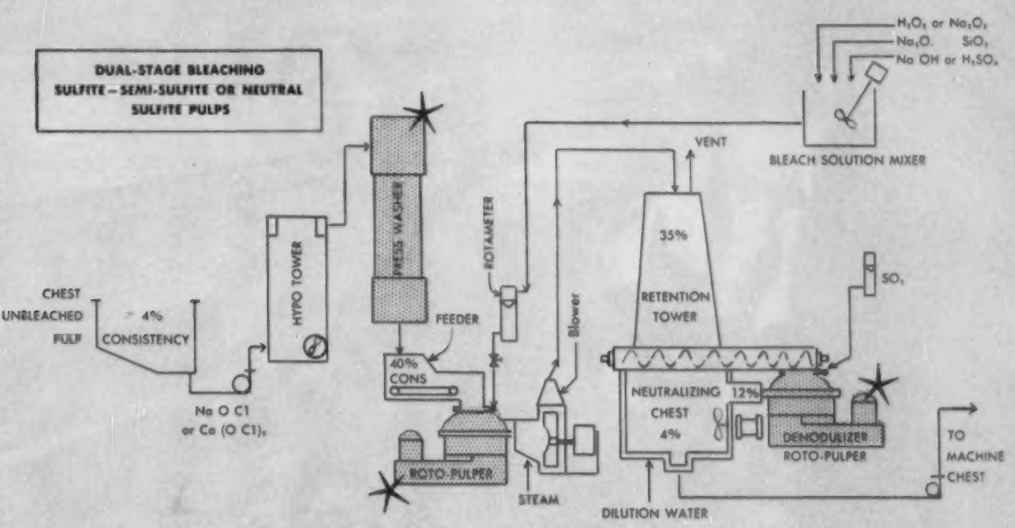
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J-C dual-stage* bleaching



. . . the modern system

that's (10) ways better!

Better because—

1. *initial investment is low*
2. *operating costs per ton are lower than all other present methods*
3. *a minimum of floor space is required*
4. *only one operator per shift is needed*
5. *yield loss is sharply reduced*
6. *it permits bleaching to maximum brightness*
7. *color reversion or loss of brightness is kept to a minimum*
8. *the system is fully continuous with precision control*
9. *there's no measurable change in pulp physicals*
10. *it's particularly adaptable to pulps with high permanganate or chlorine number*

This latest achievement of Jackson & Church engineers . . . the Dual-Stage Bleaching System . . . features continuous, fully automatic high density bleaching. The resultant pulp is of superior quality, attaining the highest possible brightness combined with the lowest loss of yield or shrinkage. The Dual-Stage Bleachng System is 10 ways better, and it can make possible tremendous savings over your present bleaching system.

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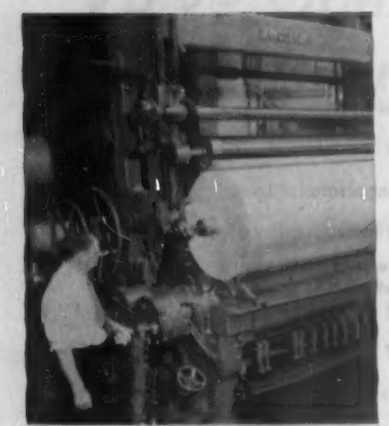
J-C **JACKSON & CHURCH CO.** SAGINAW, MICHIGAN

Work well done since eighty-one



A close-up look at Langston shear-cut slitters. The power-driven slitter drives the front slitter by friction. Paper is slit cleanly and accurately by shearing action of the two knives, like the opposing blades of a pair of scissors. Note the husky construction of these cutters—your insurance of long, dependable life at today's high running speeds. It means a better return on your investment.

Clean is the word for Langston Slitters & Winders



One of the three high-speed Langston Slitters & Winders in use at Hammermill Paper Co., Erie, Pa. This is a Model DA, handling high-grade writing paper in widths to 92 in., diameters to 50 in. Operates at 3500 fpm. Uses V-belt drives throughout and is driven by a variable speed motor.

Clean cutting. They cut like scissors instead of a knife. The famous Langston shear-cut slitters cut the paper cleanly—sharpening themselves as they run. Special steels carefully machined to close tolerances assure long dependable operation with minimum maintenance.

Clean rolls. Freedom from dust in the rolls is always desirable—frequently necessary. Because dust-laden rolls can lead to considerable trouble for the ultimate user of the paper. Self-sharpening Langston Slitters shear the paper cleanly, without the fragmentation that causes dust.

Clean plant. Freedom from paper dust is an advantage in your plant and your customers' as well. The air is cleaner. Operators are happier. There's less risk of fire, less dust on machines to gum up bearings, less of a housekeeping problem.

To enjoy all of these advantages, depend on Langston Slitters & Winders. Shearing cutters are standard equipment on Langston machines without special order or extra charge. Built in sizes up to 196 in. wide and speeds to meet your specifications. For complete information, write SAMUEL M. LANGSTON CO., CAMDEN, N.J.



LANGSTON *Leadership...by design*


IRON WORKS
SUMNER
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BUILDERS
OF
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SINCE 1892
Designers and Builders of Pulp and Paper Mill, Sawmill, Boardmill and Shingle Mill Equipment
ESTABLISHED 1892
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Asten DRYER FELTS





How long should a dryer felt last?

You simply can't predict the useful life of an individual dryer felt. Under the increasing demands for tonnage, you know that a combination of operating factors subjects felt life to hazards of excessive temperature and wear that will vary even on similar machines.

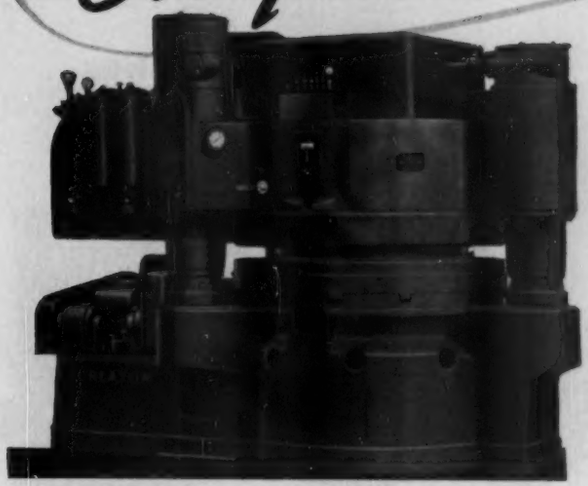
Your chances for getting long, superior service are in ratio to the extra quality built into the felt. Repeat orders for ASTENS are prompted not by claims but by consistently enduring performance on each grade and felt position for which ASTENS are designed and made.

Economy in the long run

ASTEN-HILL MFG. CO.
PHILADELPHIA, PENNA.

ASTEN-HILL LIMITED
VALLEYFIELD, QUEBEC

Only CURLATOR can . . .



INCREASE PULP YIELD UP TO 10%

ELIMINATE ALL FIBER BUNDLES AND REDUCE DIRT

IMPROVE PULP QUALITY

CUT COST

AND STILL RETAIN FREENESS AND FIBER LENGTH

Curlators are increasing pulp yield as much as 10% in commercial operation, where sulphite pulp is used in unbleached papers. When sulphite pulp is used in bleached papers the increase in yield is not quite as great.

Because Curlation does not reduce fiber length the rejections from fine screens can be increased to obtain improved cleanliness, and these rejects can then be Curlated and returned to the system for the production of additional No. 1 pulp.

Only with the Curlator can you increase pulp yield, eliminate all fiber bundles, reduce dirt, improve quality and cut cost, without affecting fiber length and freeness. No other mechanical equipment yet devised can do all these things.

West Coast Representative:
Milton J. Maguire
Paper Mill Supplies
Portland 7, Oregon

CURLATOR†
Corporation
EAST ROCHESTER, NEW YORK

†T. M. Reg.—Curlator Corporation, Rochester, N. Y.

HANCHETT *knife grinders*

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EXTRA HEAVY DUTY

MECHANICAL OR HYDRAULIC TRANSMISSION DRIVES

speeds: 10′ to 100′, 30′ to 150′ and faster
motors: 7½ h.p. to 40 h.p.
weights: 10 tons up to 40 tons
capacity: 84″ to 360″ and longer
drives: Mechanical or hydraulic head carriage for flat or concave bevel grinding

other models:
- AK — medium heavy duty — capacity 32″ to 184″
- DK — normal production — capacity 32″ to 108″

Announcing the NEW



MODEL **SK-24**

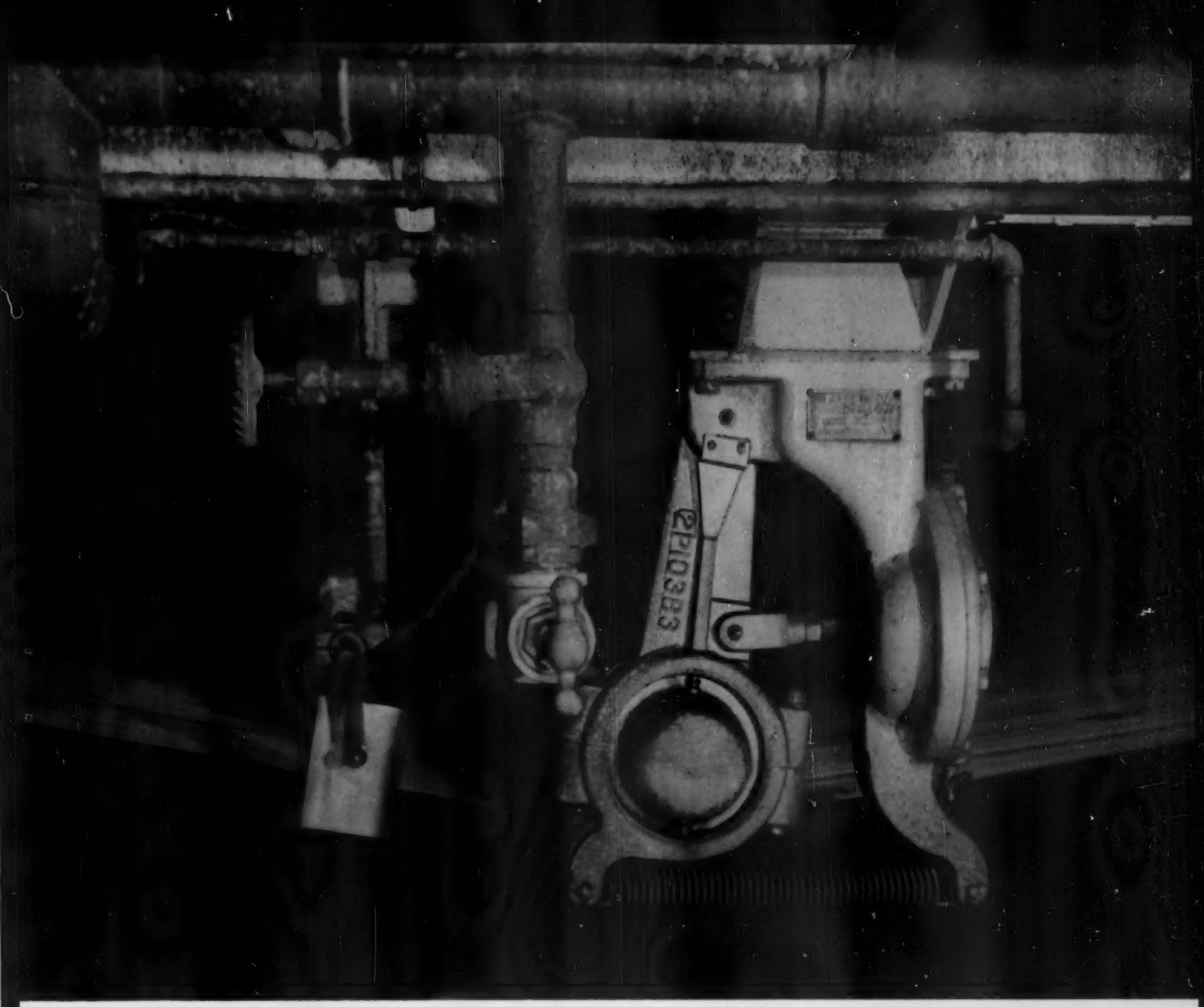
SLITTER KNIFE GRINDER for Top or Bottom SLITTERS WET GRIND

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AUTOMATIC WIRE GUIDE provides consistent guiding response at all machine speeds. This patented Beloit Air Guide needs only moderate air pressure for smooth, dependable control of wire position. No ratchet mechanism to be driven by the contact of the control palm with the wire. Simple, rugged design means trouble-free operation, minimum maintenance.—*Beloit Iron Works, Beloit, Wis.*

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PHENO FAST YELLOW 6G is a green shade yellow with the excellent dyeing characteristics which are desirable in the napkin and tissue grades. It is also a uniform working color with minimum changes due to variation in pH and sizing.

PHENO FAST YELLOW 8G has the bright green shade yellow which is necessary in the production of bright canaries or bright greens.

Economical, alkali resistant and non-feathering, these new yellows will help to produce more uniform paper.

For dyes and color pigments for paper, consult your Cyanamid Dyestuff representative.

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Should Your Mill Switch To Ammonium Bisulphite Pulping?

Among the major advantages are faster cooking, increased yields, elimination of scale, decreased chemical requirements, and the ability to pulp hardwoods

By Gordon A. Crowe
Technical Service Representative
Spencer Chemical Co.
Kansas City, Mo.

Ammonium bisulphite pulping is currently a subject of considerable interest to the management of many leading mills in this country. At the present time nine mills, representing a pulp capacity of over 1,200 tons per day, are operating on ammonia base. Other companies are presently conducting tests to help determine what their future course will be. Since ammonium bisulphite pulping certainly is not a new idea, why this sudden interest?

The explanation seems to break down into three parts: Availability, Cost and Waste Disposal.

Availability. There has been and still is a shortage of ammonia. However, indications are that adequate and reliable supplies will be available to the paper industry soon.

Cost. There is no doubt that ammonium bisulphite acid costs more per gallon than calcium bisulphite acid. This was once considered a serious disadvantage. We now know, however, that the difference is usually more than offset by savings made possible by the use of ammonia.

Waste Disposal. Many companies are giving serious consideration to the evaporation and burning of waste liquor. Because of scaling in the evaporator and fly ash from the boiler, calcium liquors present a more difficult disposal problem than do ammonia liquors.

Because operating conditions at different mills vary widely, it is usually advisable to make a test run before committing a plant to operation on ammonia base. Engineering assistance is available from the technical service sections of major ammonia suppliers.



Gordon A. Crowe

Conclusions reached by one mill which conducted a 23-day ammonia test run were:

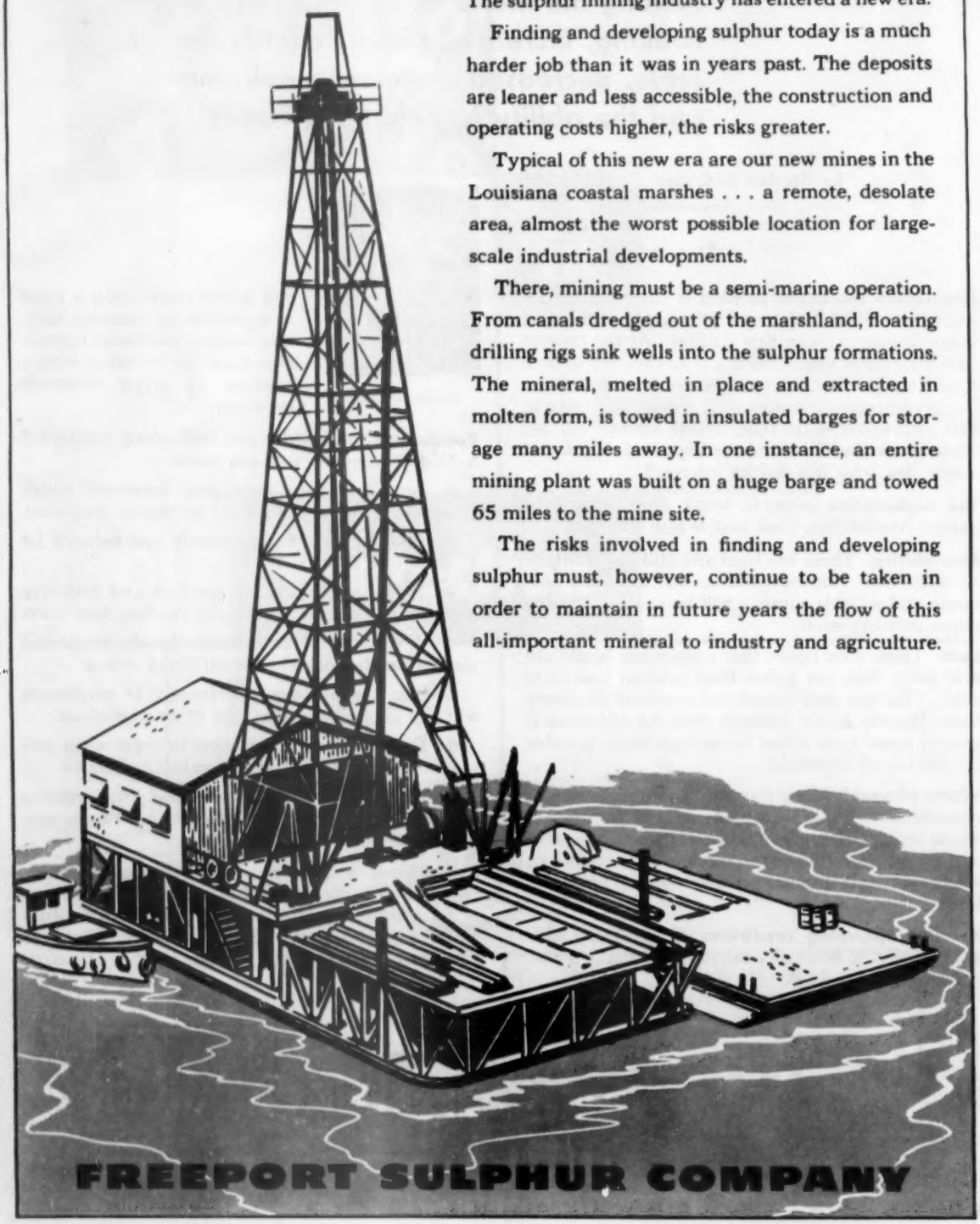
1. Ammonia base pulp gave increased yields when the regular mixture of softwoods was used.
2. Cooking time for softwoods was reduced by at least one hour.
3. Pulp quality was as good as and probably slightly better than the regular calcium base pulp.
4. A mixture of hardwoods (beech, birch and maple) can be cooked in seven hours or less.
5. The use of a small percentage of hardwoods will pay for the increased cost of ammonia base.
6. Digester operation is more uniform when ammonia is used due to clean circulating systems.
7. Bleaching time and chemical requirements can be reduced when the pulp is made from ammonia base acid.

If you have a question about Ammonium Bisulphite pulping, we'll be glad to hear from you. There is no charge or obligation for this service. Just write: Technical Service Section, Spencer Chemical Company, Dwight Bldg., Kansas City 5, Missouri.



AMERICA'S GROWING NAME IN CHEMICALS

NEW ERA



The sulphur mining industry has entered a new era.

Finding and developing sulphur today is a much harder job than it was in years past. The deposits are leaner and less accessible, the construction and operating costs higher, the risks greater.

Typical of this new era are our new mines in the Louisiana coastal marshes . . . a remote, desolate area, almost the worst possible location for large-scale industrial developments.

There, mining must be a semi-marine operation. From canals dredged out of the marshland, floating drilling rigs sink wells into the sulphur formations. The mineral, melted in place and extracted in molten form, is towed in insulated barges for storage many miles away. In one instance, an entire mining plant was built on a huge barge and towed 65 miles to the mine site.

The risks involved in finding and developing sulphur must, however, continue to be taken in order to maintain in future years the flow of this all-important mineral to industry and agriculture.

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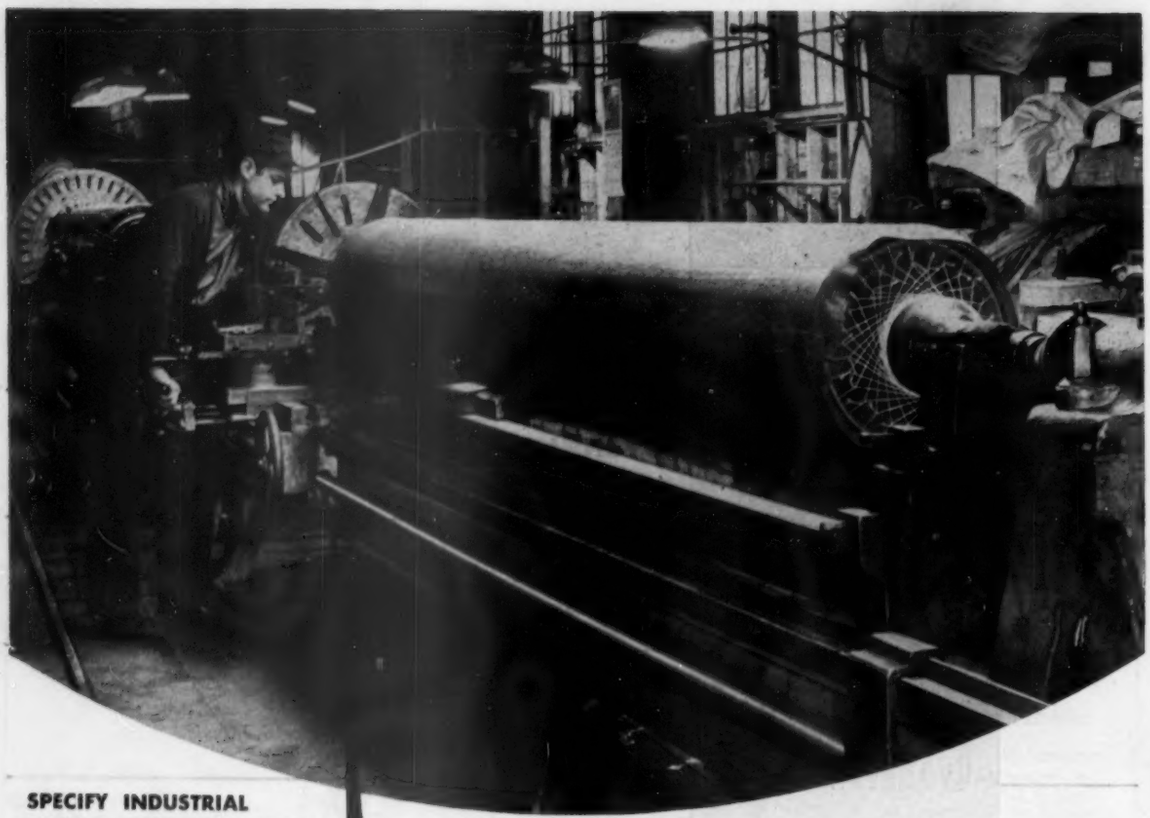
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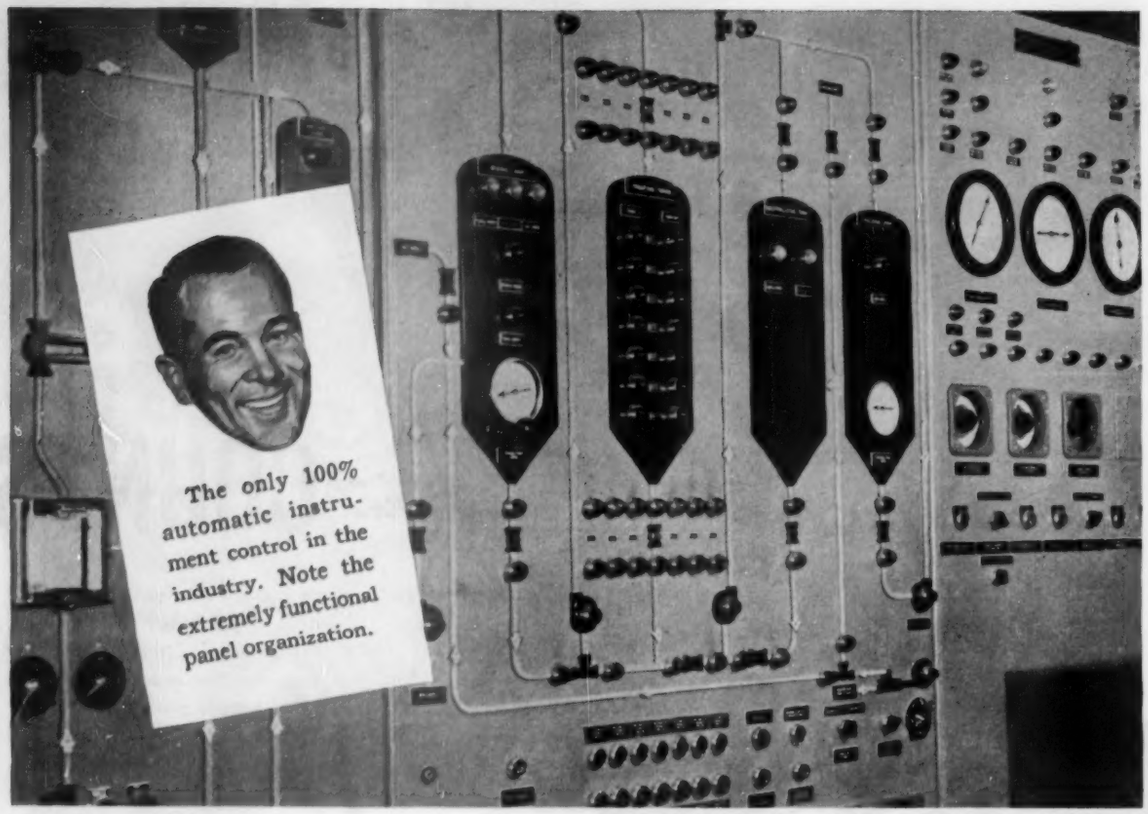
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Performance is the yardstick of rubber roll value . . . for when you "start the stuff" it's the cover that comes in contact with the "web" and provides the even squeeze and clean release that speeds production.
It's the cover that counts; and you can count on the cover . . . if it's one of Stowe-Woodward's. . . .
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HERCULES CORN STARCH brand: For Assured Uniformity in Quality Paper-Making

The production of Hercules Brand Corn Starch is under 100% automatic instrument control. This newly perfected process is the only one of its kind. It delivers a starch that meets your specifications exactly!

As a result of fully automatic, completely instrument-controlled production, one batch of a given type of Hercules is just exactly like every other batch of the same type. So you can see that we mean business when we say: Hercules gives you uniformity of quality you can count on. This pays off for you in two important ways:

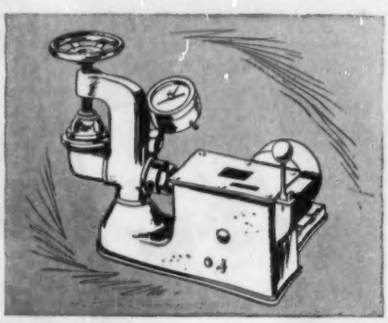
1. You need make fewer spot tests to check uniformity.

2. You receive fewer rejects of your product from your clients.

RESEARCH: All Hercules starches have resulted from extensive *research* in the lab and in the field.



HIGH MULLEN FACTORS are obtained by the use of Hercules starches as beater additives, in "off the machine" coating, and in Calender sizing.

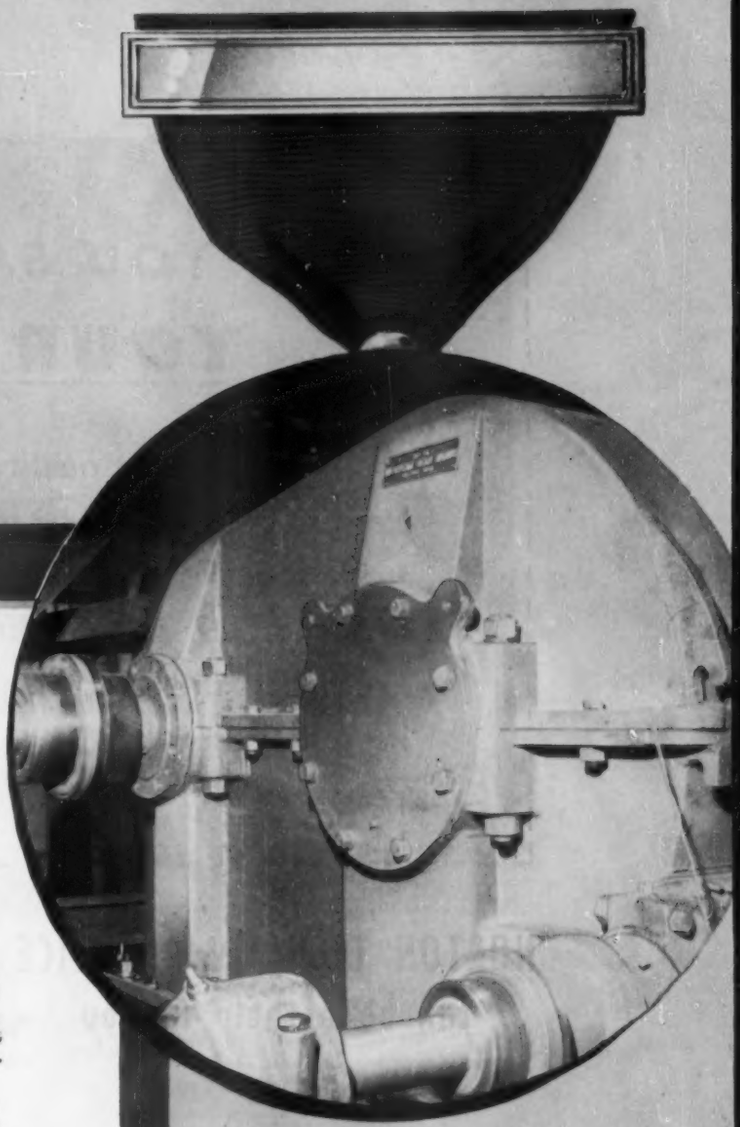


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You get the Hercules Starch you want when you want it. You're sure of supply. For free technical assistance write to

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WESTERN GEAR SERVICE:

"Above and Beyond the Call of Duty"



[redacted]

December 11, 1953

Mr. C. Harshberger
Pacific Coast Gear Products Inc.
930 Southeast Oak Street
Portland 14, Oregon

Dear Mr. Harshberger:

Quite occasionally in our business careers we have experiences which were they to occur in the military field of endeavor would be characterized by the statement "above and beyond the call of duty." One such experience has recently occurred in the production and delivery of the special reduction gear which we ordered through you on November 17, 1953. You advised us that you thought this gear could be delivered in three weeks or thereabouts, and we gave you the "go ahead" on the equipment on the afternoon of the 17th, advising you that the paper machine drive to which this gear was to be applied was on its last legs and we were very fearful that it would not last until we got the new gear. We asked you to work all the overtime that your people could humanly accomplish in order to deliver the gear to us at the earliest possible moment.

On the morning of December 7th, just one day lacking three weeks from the time of order, the drive on No. 2 Machine gave every evidence of early demise. Western Gear was fortunately able to ship the gear at noon on Monday; it arrived here at six that evening and was installed and operating about 24 hours later. The equipment taken out was, indeed, on its last legs, and I am sure it would not have run another 24 hours.

[redacted] is sincerely appreciative of the very fine cooperation in design and production of this unit, and we would like all those who had a hand in doing such a superlative job for us to know that this experience, related here in some detail, is one that deserves the "medal of honor."

I am glad to say that the installation difficulties which worried us for a day after the startup seem to be ironing out, and we are confident that this gear will serve us for a long period of time.

Again many thanks to all concerned and with kindest regards, I am

Sincerely yours,

[redacted]

** letter in our files—name upon request*

WESTERN GEAR WORKS

like to receive letters from customers—*especially* letters like *this one* from a major Pacific-Northwest industry. We don't wish to boast but with this letter in mind we'd like to again remind you that if you have a mechanical power transmission problem we would like to be of service—remember we have a background of 66 years of experience so won't you write, wire or telephone us today?

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ARE YOU SATISFIED WITH YOUR PULP?

Is it the right quality to meet today's competitive conditions? Could it be improved by a change in pulpstone specifications? Could you use the new G bond for example? Pulp quality requirements are changing every day and Norton pulpstone developments are keeping pace.

NORTON TECHNICAL SERVICE can be of help to you





IT'S real service, too — based on thirty years' experience in designing and building pulpstones for all types of groundwood mills. Your individual problems will be carefully studied by a trained engineer. He'll specify exactly the right stone in abrasive, bond, grain size, hardness and structure to produce just the quality of pulp which you need to meet today's requirements.

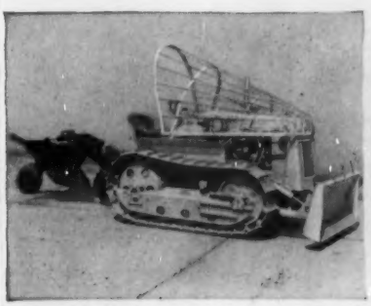
NORTON COMPANY, WORCESTER 6, MASS.
Norton Company of Canada, Ltd., Hamilton, Ont.

Making better products...to make other products better

Abrasives · Grinding Wheels · Grinding and Lapping Machines · Refractories · Porous Mediums · Non-slip Floors · Norbide Products



this dozer has all the angles!



Excellent for forestry and lumbering work is this fire-line plow attachment on the tractor-dozer. Brush protector is easily attached or removed. Plow is all hydraulic...raises or lowers from the tractor seat. Angling and tilt blades are also available for the dozer.



An efficient front-end loader is another attachment that makes the tractor-dozer even more useful. It attaches quickly and easily to a stationary mounting frame. Uses the same hydraulic system and control as the dozer.

When it comes to figuring ways to cut costs and speed work, the Oliver "OC-3" tractor-dozer has all the angles. Why? Well, for one thing it's compact and turns on a dime. You get into places you can't reach with a larger machine...do many jobs formerly done by hand.

You have a choice of blades and a front-end loader for all types of work. Another thing, finger-tip hydraulic control gives you the down pressure and accurate adjustment you need to do a fast, clean job. And, you get the power, traction and clearance to work in any weather, any ground condition.

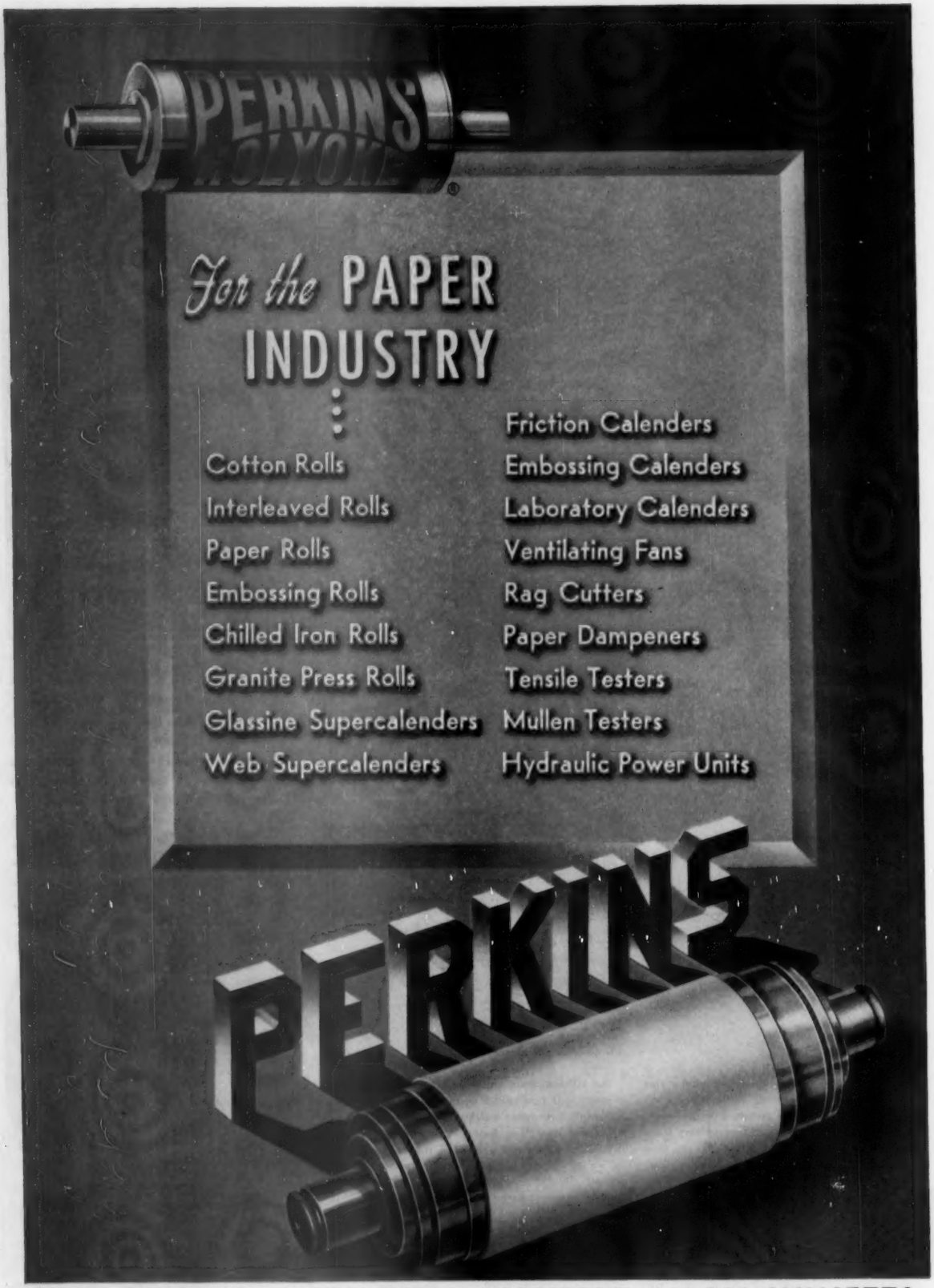
Here's another angle that's worth figuring—takes only a light trailer or truck to move the "OC-3" tractor-dozer from job to job. The fast, easy transport of this unit puts you in line for more work at distant points. Why not check this rugged, economical team for your work? A call or visit to your Oliver Industrial Distributor will put the tractor-dozer on your site for a demonstration.

THE OLIVER CORPORATION

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A complete line of industrial wheel and crawler tractors.

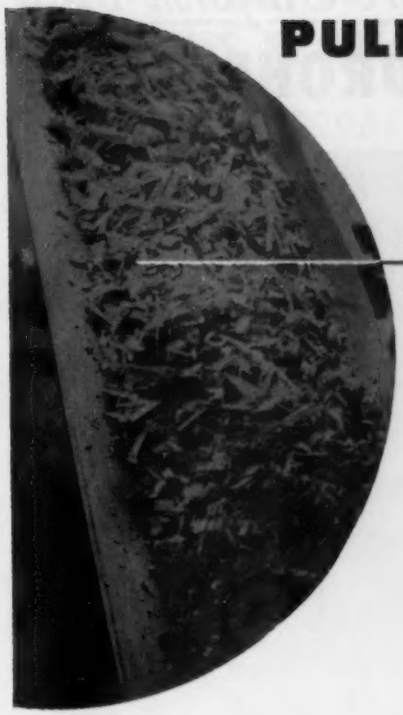


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PULPING COSTS GO DOWN!

with

AMMONIUM BISULPHITE Pulping



Leading mills have converted to the Ammonium Bisulphite Pulping Process because they found pulp production is increased, *while pulping costs go down.*

The changeover to this Pulping Process–pioneered by us–is inexpensive. A minimum replacement–and in many cases, no replacement–of equipment is involved, and there is practically no loss of production during conversion. Check the partial list of advantages below, then wire, phone or write us today. A member of our Technical Service staff will call, give you full details, facts and conversion methods. No obligation!

- **More pulp**–a higher proportion of acceptable pulp of increased freeness is produced, thus increasing the capacity of knotters, deckers, washers and fine screen equipment.
- **Better quality**–unbleached pulp is more uniform, stronger, brighter; has lower ash and lower screened speck count. Less bleach needed.
- **Saves steam**–superior penetration reduces cooking time and maximum temperatures. Temperatures are lowered as much as 30°F!
- **Saves labor**–one ton of ammonia replaces *three* tons of limestone. Handling of limestone, scaling are eliminated.
- **Overcomes stream pollution**–waste liquor is *easily evaporated;* there is a greater recovery of heat and chemicals; while stream pollution is reduced to a minimum.

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☐ Yes, please send me full details on your Ammonium Bisulphite Pulping Process.

☐ Please arrange to have your Technical Service Man call. No obligation.

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State_____ PU-7W

Assure Higher Yield of More Uniform Pulp with the **Chemipulp HYDROHEATER**



Hydroheater installed in horizontal position, with steam inlet at top and liquor inlet at bottom. Air actuated thermostatic valve shown at right. Combining tube adjustment at top left.

Heats outside the digester
No degradation of fibre
Low initial cost
Low maintenance cost

By automatically maintaining liquor temperature within 1° C., the Chemipulp Hydroheater permits accurate digester control that results in high yield and high quality.

The liquor is heated outside the digester by direct injection of the steam. An ingenious combining tube results in thorough steam-liquor mixing without the excessive noise usually caused by the sudden condensation of the steam. All of the heat in the steam is used — practically 100% thermal efficiency. A sensitive control located in the digester inlet operates the thermostatic valve in the steam line and holds the temperature within 1°C.

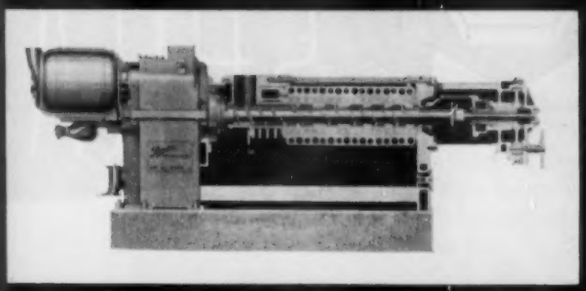
Compact in design, the Hydroheater actually becomes part of the piping system and can therefore be used in a wide range of locations and positions.

Chemipulp Process, Inc.
Woolworth Bldg. Watertown, N. Y.

Associated with Chemipulp Process Ltd., 430 Crescent Bldg., Montreal
Pacific Coast Representative, A. H. Lundberg, 308 Orpheum Bldg., Seattle 1, Wash.

THIS *NEW* MACHINE SOLVES PROBLEMS

BAUER PRESSAFINER



A machine like this has never before been used in the pulp and paper industry.

The No. 460 Bauer Pressafiner is essentially a continuous screw press which develops pressures up to 8,000 psi. Materials processed are subjected to alternate twisting and compressive forces. Nobody knows all of its possible applications, but the Pressafiner has demonstrated its ability to perform the following unique operations:

1. Remove fluids from wood chips, agricultural residues, screenings, knots, bark, and pulp.
2. Accomplish preliminary fiberizing of chips and other large fiber aggregates.
3. Mildly cook fibrous materials by means of compaction heat.

These achievements of the Pressafiner pay handsome returns on the investment by removing concentrated liquor, simplifying the problem of stream pollution, reducing water and steam consumption, cutting down power requirements for pumping and refining, improving pulp yield and paper quality, dewatering bark for fuel, and fiberizing raw or steamed chips for board stock refining.

Naturally, you'll want more information on the Pressafiner. So mail the coupon.

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a new coating clay . . .

FINE FRACTION · SPRAY DRIED · HIGH QUALITY

a finer product for you

HIGHEST SHEET STANDARDS . . . demanded today by an increasing number of mills producing for quality conscious customers . . . were the reasons for the development of **SPRAY-SATIN** . . . an entirely new, but production proved, fine fraction coating clay.

Spray Drying - another Edgar First

For many years it has been known that the purest and most uniform clays could be produced by the "Spray Drying Method" . . . this is the same process used to make your morning's instant coffee. Many years of experimentation, development and commercial production by Edgar technicians have made "Spray Drying" a commercial success. The result is a new $750,000.00 plant expansion to provide you with the finest coating clay modern technology can produce.

try SPRAY-SATIN *in your own plant*

with these solid cost saving advantages



BONE DRY— Only with Spray Drying can you have a guarantee of less than 1% moisture without ever having the clay over-dried. In SPRAY-SATIN you will never find a pinhead . . . never a particle of calcined clay.



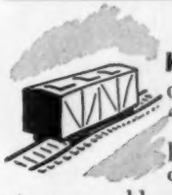
HIGHEST PURITY—In addition to finer than usual mechanical screenings, the spray drying process makes possible a magnetic screening of the slip to produce a purity of product never before achieved.

FREE FLOWING — EDGAR SPRAY-SATIN flows like sand. There is no caking, no arching in silos. Works wonderfully in airveyors and gravity flow systems. You will experience real cost savings in the handling of SPRAY-SATIN.



HIGH UNIFORMITY— Day in and day out and year in and year out, the spray drying process produces a product of unmatched uniformity. The precise controls of the spray drying method makes this high uniformity possible.





HIGH BULK DENSITY — Another unique advantage of the "Spray Drying Method" is a product of unusually high bulk density. For buyers who have storage problems, or who enjoy "incentive loading" freight rates, or who use covered hopper cars, there are substantial savings in the use of SPRAY-SATIN.



EASY MAKE-DOWN—Before the slip enters the final spray drying process a dispersant is added. You will find that SPRAY-SATIN will go into suspension almost immediately . . . make-down time is dramatically reduced.

Edgar Brothers Co.

METUCHEN, NEW JERSEY

Try a sample run of SPRAY-SATIN in your own plant . . . the product will prove itself.

EDGAR BROTHERS COMPANY, 11 STATION PLACE, METUCHEN, NEW JERSEY

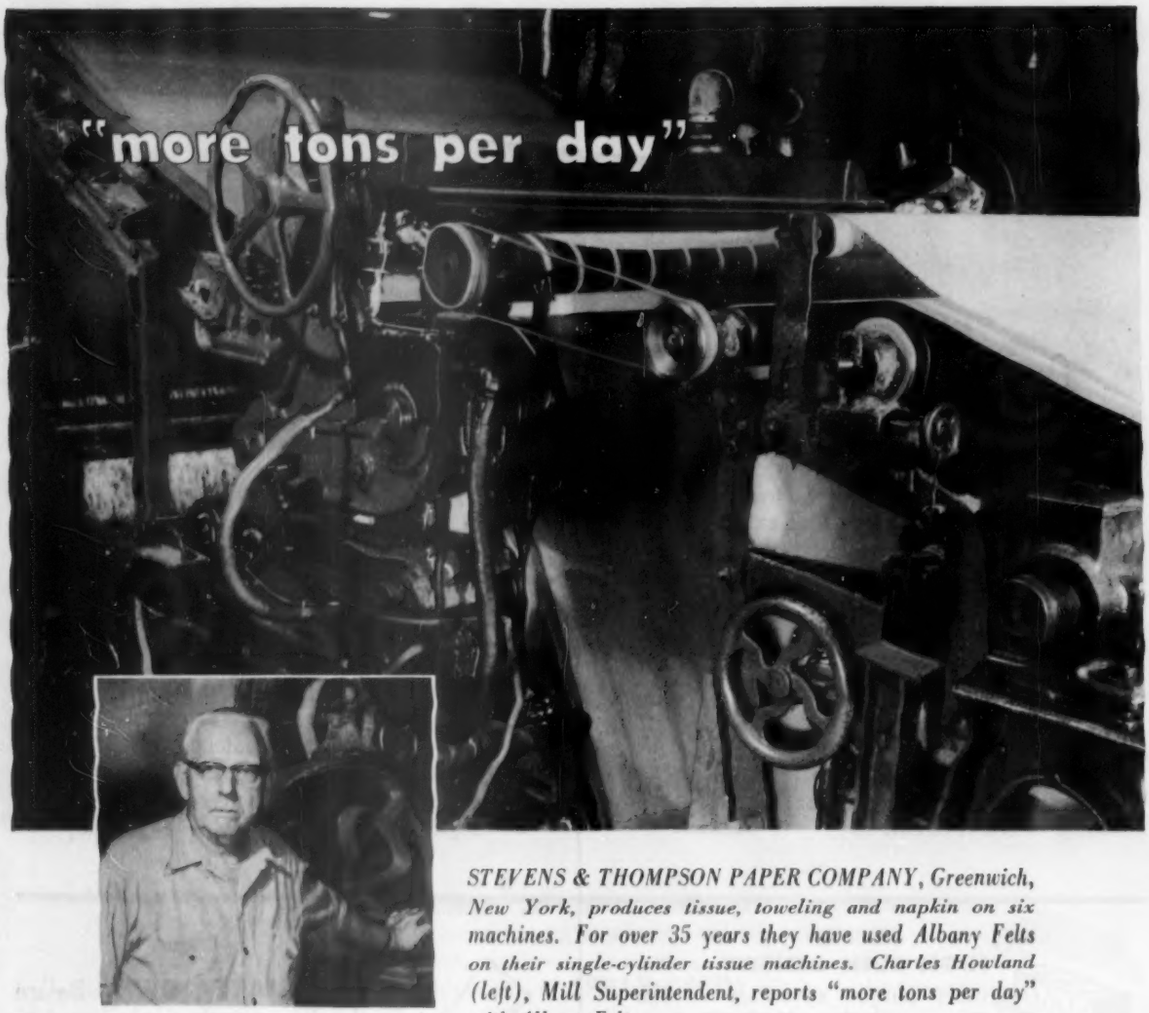
Please send me, without obligation, sample as checked ⬡ 2 lb. ⬡ 5 lb. ⬡ 10 lb.

Name _____

Company _____

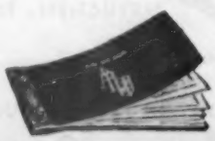
Address _____

City _____ Zone _____ State _____



STEVENS & THOMPSON PAPER COMPANY, Greenwich, New York, produces tissue, toweling and napkin on six machines. For over 35 years they have used Albany Felts on their single-cylinder tissue machines. Charles Howland (left), Mill Superintendent, reports "more tons per day" with Albany Felts.

Albany Felt Company's technically trained sales engineers constantly strive to improve felt performance on your machines. Just as twenty-five years ago Albany engineers introduced the revolutionary concept of individually designed, custom-made felts for each felt position, today they are supplementing this valuable service with actual operational studies which we term "felt performance check." This extra service, by analyzing the basic principles of felt operation in relationship to over-all efficiency assures our customers MORE TONS PER DAY. Even more important, Albany sales engineers are backed up by the industry's leading service engineers and felt makers, a complete service laboratory, an extensive research and development program, and a product *famous* for quality.



FREE! Felt Performance Record Book for Mill Superintendents, Managers, Purchasing Agents. Write for your handsome leather binder containing convenient forms for maintaining records and graphs of felt performance, felt inventory, etc.

ALBANY FELT COMPANY

World's Largest Manufacturer of Paper Machine Felts

MAIN OFFICE AND PLANT, ALBANY 1, NEW YORK

Other plants: Hoosick Falls, N. Y., North Monmouth, Maine, Cowansville, Quebec

Recipe for service



Begin with a good company, add liberal quantities of technical skill and the will to serve. Flavor with specially trained sales representatives, and informative advertising. Mix well with experience for nearly 50 years. This formula has made Bolton products and service outstanding in the pulp and paper industry.

BOLTON

Ring Type Plug Fillings	Chipper Knives
Hydro Truss Shell Fillings	Rag Knives
	Hog Knives
Beater Bars and Woods	Barker Knives
Bed Plates	Sheeter Knives
Paper Knives	Rotary Knives

EMERSON

Jordans	Magnetic Separators
Wedgeless Plugs	Shower Pipes
Stainless Steel Jacketed Plugs	Suction Box Covers
	Pin-Type Couplings

Jordan Plug Pressure Controls and Recording Systems







John W. BOLTON & Sons, Inc.

EMERSON MANUFACTURING DIVISION

Lawrence, Massachusetts, U. S. A.

Engineers – here's how a *Speedline* system will cut your piping costs!

on pressure problems

If You Use Schedule 40 Pipe at 150 psi Operating Pressure



Schedule 40:
100 to 1 Safety Factor

Lighter Wall will Meet Pressure Safety Requirements



Schedule 10:
83 to 1 Safety Factor

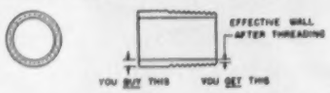


Schedule 5:
50 to 1 Safety Factor

BUY ALL THE WALL YOU *NEED* . . . DON'T BUY *MORE*

on flow problems

If You Use Screwed Fittings



You Lose One Half The Wall You Bought—AT THE THREADS

Lighter Wall Plus Speedline Fittings Give You:

GREATER INSIDE AREA · MORE FLOW
LOWER PRESSURE DROP



You get *greater flow and capacity* in light-wall pipe. For example, Schedule 5 has 15% to 25% more capacity than Schedule 40.

on corrosion problems

CORRECT ANALYSIS will combat CORROSION regardless of Wall Thickness

Type Corrosion	More Wall?
Contamination	No advantage
Discoloration	No advantage
Intergranular	No advantage
Galvanic	No advantage
Atmospheric	May be advantage
Pitting	Little advantage
Inches Penetration Per Year	May be advantage

CHANGED ANALYSIS and LESS WALL can be GREATER COST ADVANTAGE than CHANGED ANALYSIS and SAME WALL.

Speedline FITTINGS DESIGNED FOR SCHEDULES 5 AND 10 GIVE YOU:

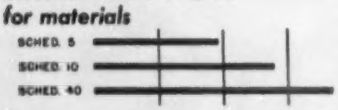
lower installation costs

for labor



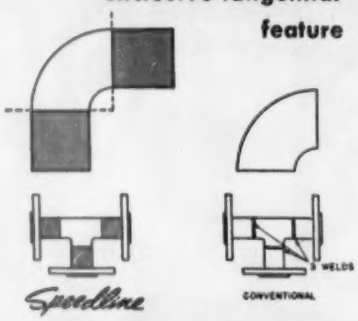
SPEEDLINE ALIGNING CONNECTORS
Speed Installation
Can be Welded, Fused, Soldered or Brazed
Provide Easy Change-over from Schedule 40 to 5 or 10

for materials



You pay much less for light wall pipe. Here's a cost comparison of the three schedules in 1" size.

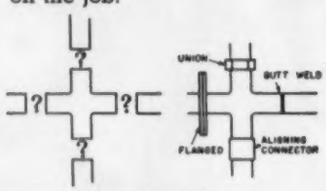
exclusive tangential feature



Provides Easier Aligning (with or without aligning connectors), more clearance for Welding or Flanging on ALL Speedline Formed Fittings. See gray panel below.

greater flexibility

Type of Joint can be selected "on the job."



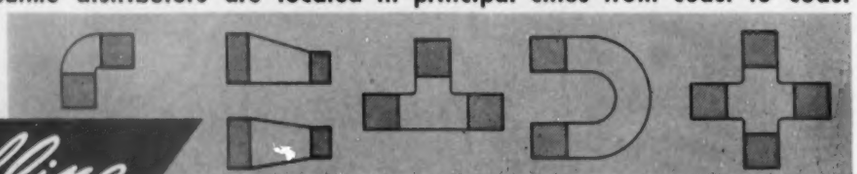
FEWER DESIGN HOURS
FEWER INVENTORY ITEMS

SPEEDLINE "Multiple Choice" Fittings eliminate conventional flanged fittings, provide time and cost advantages of simple layouts versus elaborate and costly designs.



Write for a copy of "Speedline Fittings"...without obligation.

***Speedline* distributors are located in principal cities from coast to coast**



Speedline

Corrosion-Resistant FITTINGS—the newest thing in pipeline economy

Manufactured by **HORACE T. POTTS CO.** · 550 E. Erie Avenue · Philadelphia 34, Penna.

ANOTHER E.D. Jones INSTALLATION

A new worm adjusting mechanism is featured in these 4 Jones Majestic Jordans at Weyerhauser's new board mill at Longview, Wash.



ANOTHER E.D. Jones INSTALLATION

These 5 Jones Majestic Jordans were part of the $15,000,000 expansion program at Hollingsworth & Whitney's Mobile, Ala., plant.

Majestic is the word for these Jordans

The Majestic is only one of the many sizes in which Jones Jordans are made. But such is the popularity of this high-capacity work horse that it accounts for 25% of the Jones Jordans sold to date. Like all Jones Jordans it incorporates exclusive features developed from our more-than-a-century of service to paper mills. For more details, ask your Jones representative or write for Bulletin 1007-A.

E.D. Jones

E. D. Jones & Sons Company, Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

Monsanto Introduces:

A Complete Dry Fortified Size . . . . .



NEW! MERSIZE RM DRY

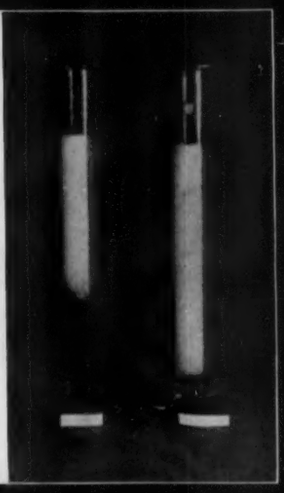
.WITH LOW FOAM INDEX

Compare Mersize RM Dry with any Other Dry Size

❶ LOW FOAM

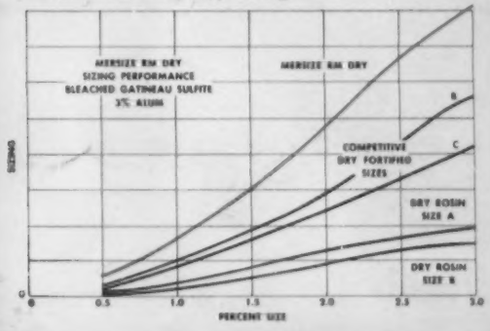
Mersize RM Dry produces less foam than any other size—fortified or rosin—on the market. Here is a typical comparison:

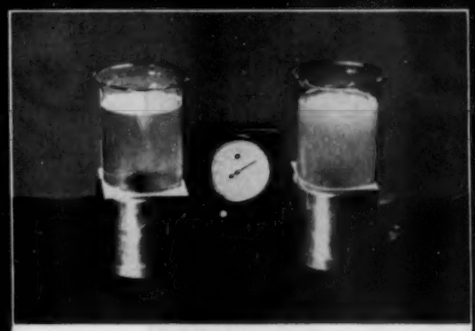
Size	Foam Index
Mersize RM Dry	**10**
Competitive Size B	**70**
Competitive Size C	**40**
Competitive Size D	**25**
Competitive Size E	**20**



❷ HIGH EFFICIENCY

Compared in this graph with competitive dry rosin and fortified sizes, RM Dry is substantially more efficient. Mill trials confirm this. In a typical trial, 0.85% of Mersize RM Dry gave sizing equal to that obtained with 1% of competitive product B on sulfite bond—a 15% saving.





❸ FAST DISSOLVING

Mersize RM Dry dissolves readily even in cold water, faster than the fine-powder sizes.

In photo, 3% of RM Dry and a competing dry size have been stirred into cold water. After five minutes, the Mersize (left) has completely dissolved while the other size solution remains cloudy.

❹ LIGHT COLOR

Mersize RM Dry is very light in color and resists darkening upon aging. Its solutions are clear and light.

Mersize RM Dry therefore gives high-brightness paper, comparable to the lightest rosin size, and gives paper with better lightfastness than other sizes.

LOW DUSTING... HIGH DENSITY

Your beater room men will appreciate Mersize RM Dry. It is low in dusting—equal to the best of previous products—and is less sticky . . . you save as much as 20% in storage space, because it is more dense than competing dry sizes.



Monsanto—the originator of fortified sizes—has added another outstanding product to its line of pale fortified sizes in Mersize RM Dry.

Mersize CD-2—concentrate, for use with rosin size
Mersize CD-2 Dry—concentrate in dry form
Mersize RM 70%—complete fortified paste size
Mersize RM 77%—complete fortified paste size

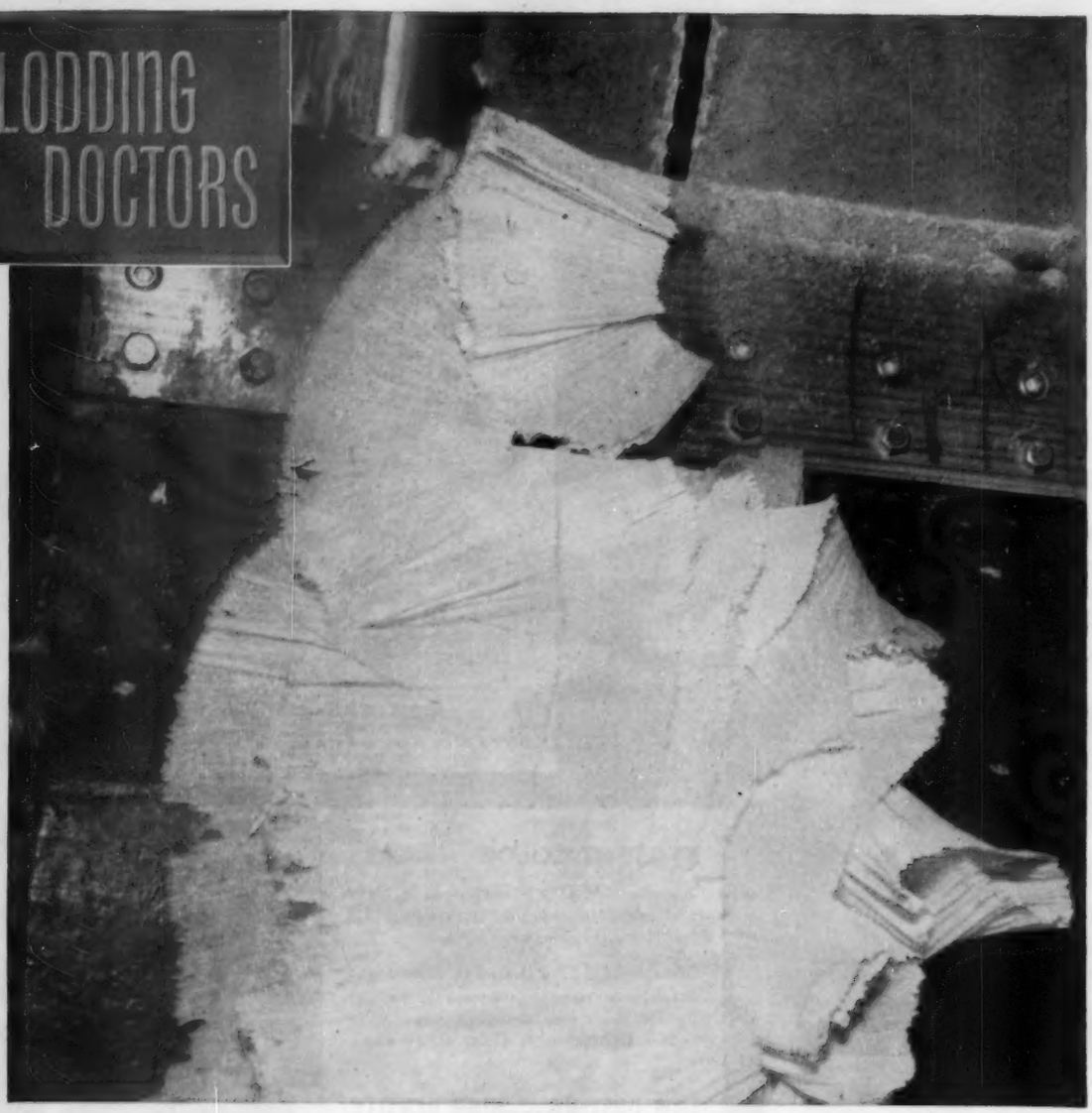
Call any Monsanto office for a trial order now. *Write* us for technical literature on Mersize RM Dry. Organic Chemicals Division, MONSANTO CHEMICAL COMPANY, Box 478, St. Louis 1, Missouri.

Mersize: Reg. U. S. Pat. Off.

MONSANTO

SERVING INDUSTRY... WHICH SERVES MANKIND

LODDING DOCTORS

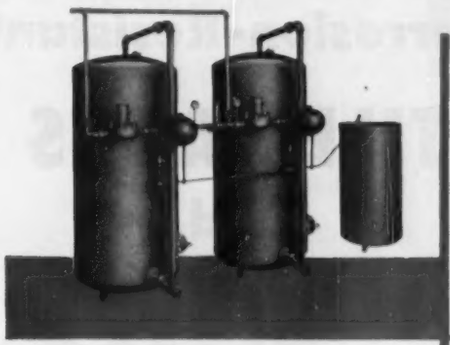


Rugged action... For high production creping... Lodding Doctor ... Lodding blade holder ... Lodding precision built blade ...

LODDING ENGINEERING CORPORATION
WORCESTER, MASSACHUSETTS
REPRESENTED BY
W. E. GREENE CORPORATION • WOOLWORTH BLDG., NEW YORK

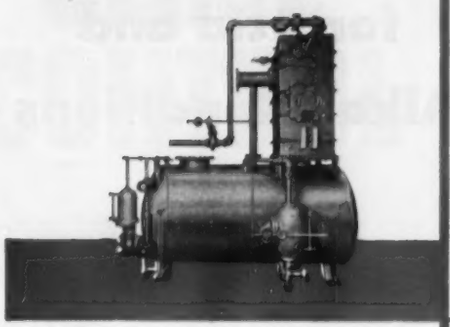
Designed to Prevent Boiler Scale and Corrosion *ECONOMICALLY*

MANUFACTURING EVERY TYPE OF DEAERATING HEATER AND WATER CONDITIONING EQUIPMENT, Cochrane's *complete* service assures you unbiased recommendations for equipment to performance specifications.



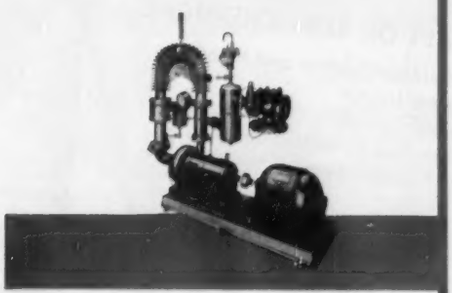
COCHRANE ZEO-FLO ZEOLITE SOFTENER

Efficiently removes hardness and scale producing calcium and magnesium from water at low operating costs. Provides positive, accurate control of the softening and regeneration cycle. Simple to operate and install. No technical knowledge of the softening process or equipment is required. *Write for Publication 4505-A.*



COCHRANE UNI-PAC DEAERATOR

Delivers deaerated water with an oxygen content guaranteed not to exceed 0.005 c.c. per litre (less than 7 parts per billion)—generally recognized as zero oxygen! Factory assembled. Completely self-contained. Easy to install. Wide range of heater sections, storage tanks and accessories to meet practically any plant requirement. *Write for Publication 4643.*



COCHRANE C-B CONDENSATE RETURN SYSTEM

Reduces steam cost to absolute minimum by direct return of condensate from process equipment to boiler at steam temperatures.

Automatically eliminates entrained air from circuit.

Steps-up Latent Heat Transfer resulting in Increased Production—Better Product Quality, and Minimum Maintenance.

Several hundred installations in Package Boiler Plants such as Corrugating—Food—Laundry—Rubber—Chemical, etc.—PROVE THIS! *Write for Publication No. 3250.*

C100.10

COCHRANE CORPORATION
3130 NO. 17TH ST., PHILA. 32, PA.
Please send me Publication No. 4505-A, 4643, 3250.
(Circle publications desired.)

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

Cochrane
CORPORATION
3130 17th STREET, PHILADELPHIA 32, PA.

Representatives in 30 principal cities in U. S.; Toronto, Canada; Mexico City, Mexico; Paris, France; Havana, Cuba; Caracas, Venezuela; San Juan, Puerto Rico; Honolulu, Hawaii.

Pottstown Metal Products Division—Custom built carbon steel and alloy products

Demineralizers • Hot Process Softeners • Hot Zeolite Softeners • Dealkalizers • Reactors • Deaerators • Continuous Blow-Off • C-B Systems • Specialties

COMPLETE SERVICE

Design

Installation

Maintenance

Repair

Corrosion-Resistant

TILE TANKS
and
LININGS
for Acid and Alkali Conditions

PULP MILL

SULPHITE

Digester Linings for Calcium, Ammonia, Soda and Magnesia Base
Combustion Chamber, Acid Tower, and Settling Tank Linings
Acid Storage Tanks

KRAFT OR SEMI-CHEMICAL

Combustion Chamber and Absorption Tower Linings
Digester Linings
Bleach Plant Tanks and Linings
Pulp Storage Chests

PAPER MILL

Special Process Chests
Stock Storage Chests
Wire and Couch Pit Linings

CHEMICAL PLANT

Acid and Alkali Storage Tanks
Pickling Tanks
Tower Linings and Packing

AUTHORIZED APPLICATORS FOR SARAN RUBBER & TYGON LININGS

SINCE 1884
Specialists in Design Installation and Servicing of Linings and Tile Tanks

SEMCO

STEBBINS
Engineering and Manufacturing Company, Watertown, N. Y.

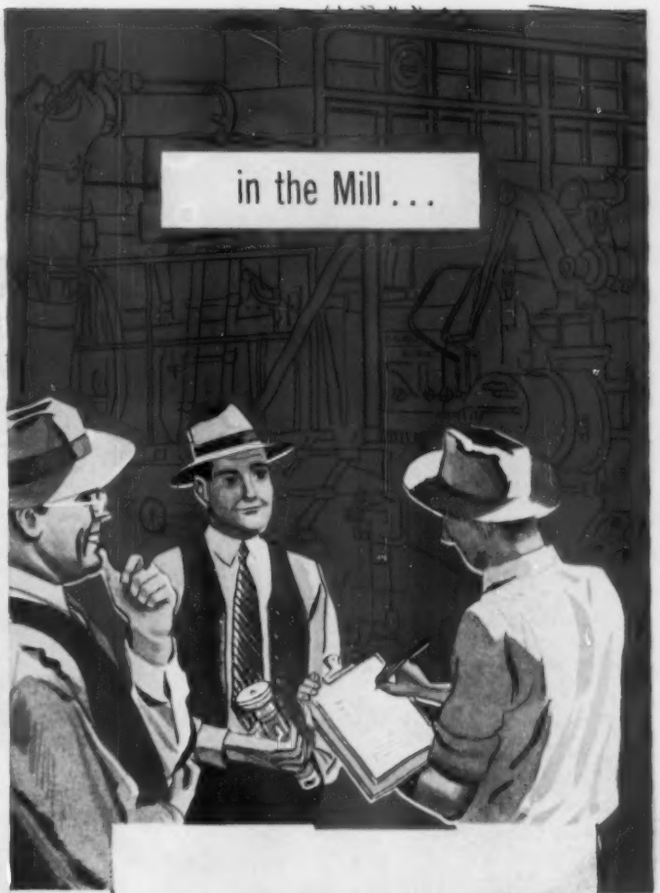
STEBBINS ENGINEERING CORP. — TEXTILE TOWER, SEATTLE, WASH.
CANADIAN STEBBINS ENGR. & MFG. CO., LTD. — CASTLE BLDG., MONTREAL, CANADA

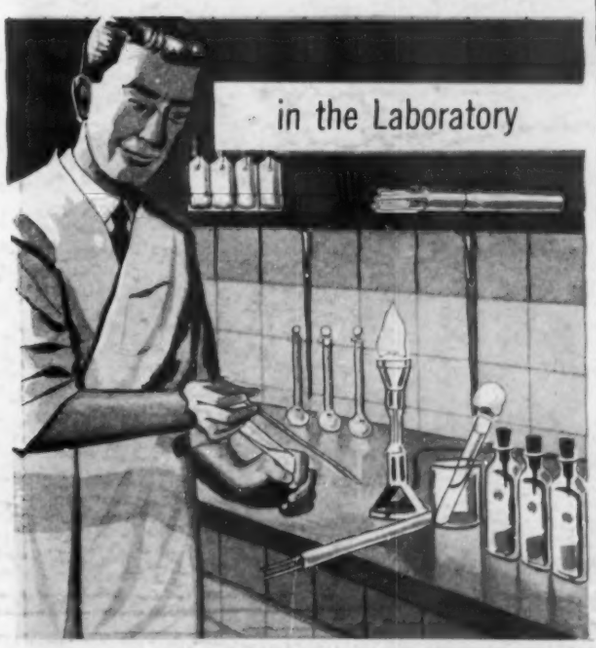
BUCKMAN

technical men
work as a team
to give practical
help on

SLIME CONTROL

at YOUR mill





BUCKMAN

LABORATORIES, INC.

MICROORGANISM CONTROL SPECIALISTS

Manufacturing Chemists • Memphis 8, Tennessee

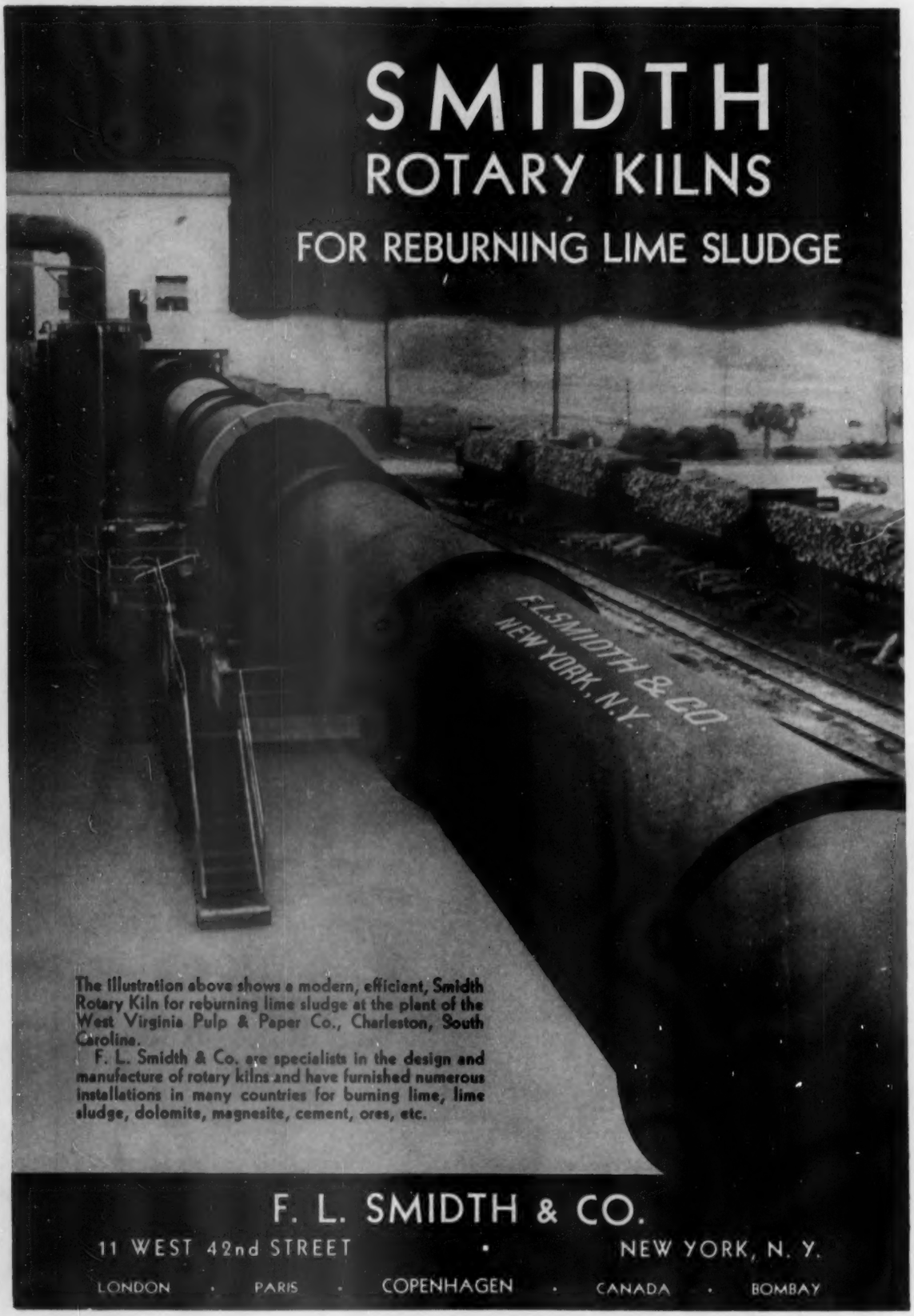
Representatives in Most Countries

Pioneers of:

Synergistic combinations of bactericides and fungicides
Intermittent treatment
Hot toxicant-detergent clean-ups
Spray treatment Slime Measuring Unit
Slime Indicator Solution

USE.. BSM-II or BUTROL as part of Good housekeeping practice

SMIDTH
ROTARY KILNS
FOR REBURNING LIME SLUDGE



The illustration above shows a modern, efficient, Smidth Rotary Kiln for reburning lime sludge at the plant of the West Virginia Pulp & Paper Co., Charleston, South Caroline.

F. L. Smidth & Co. are specialists in the design and manufacture of rotary kilns and have furnished numerous installations in many countries for burning lime, lime sludge, dolomite, magnesite, cement, ores, etc.

F. L. SMIDTH & CO.

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QUALITY PRODUCTS
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PULP AND PAPER MAKING MACHINERY

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UP TO 12" EXPANDED DIAMETER
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Manufacturers of Perforated Metals



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Variable Speed Clutch Pulleys — Governor Controlled Brakes

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Patented U.S. and Canada
ECCENTRIC DRIVE—BRONZE OR WOOD VAT.
For Canadian Mills,
Manufactured and Sold by
Hydro-Turbine Co., Montreal, Quebec

A. M. CASTLE & CO.
STEEL DISTRIBUTORS

ALAN WOOD "ALGRIP" ABRASIVE FLOOR PLATE

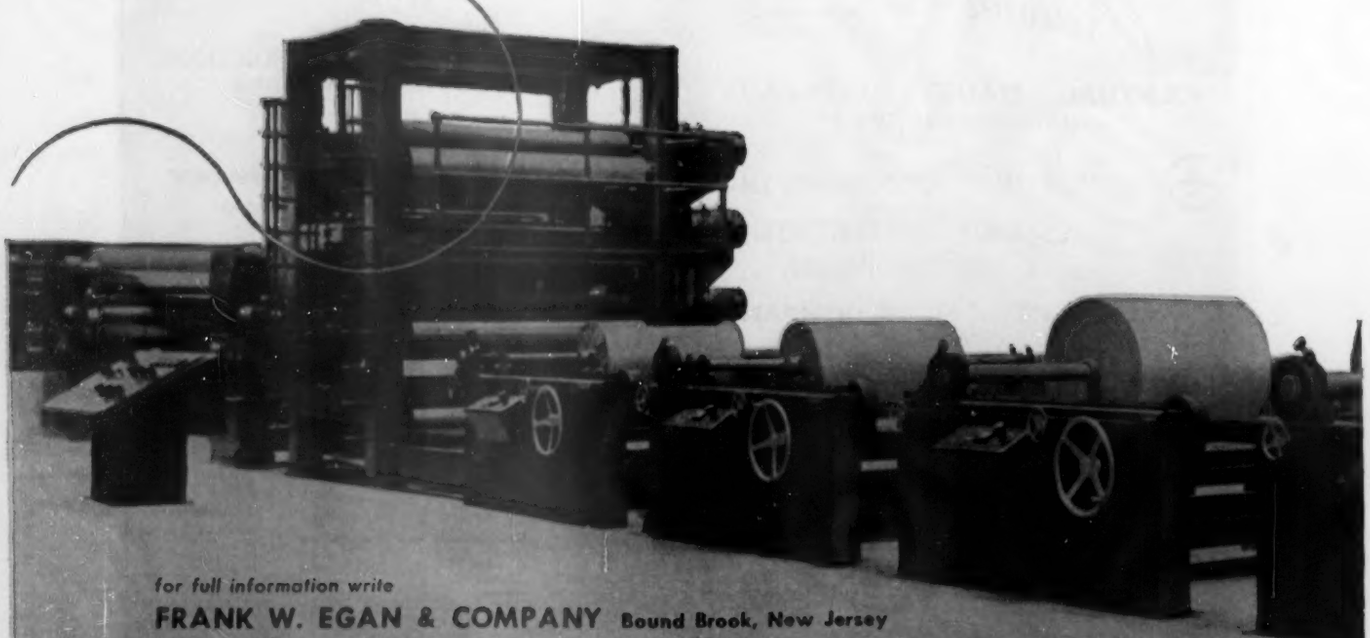
ONE OF THE **LARGEST LAMINATORS**

EVER INSTALLED

GIVES ONE OF THE WORLD'S

LEADING CONVERTERS

continuous



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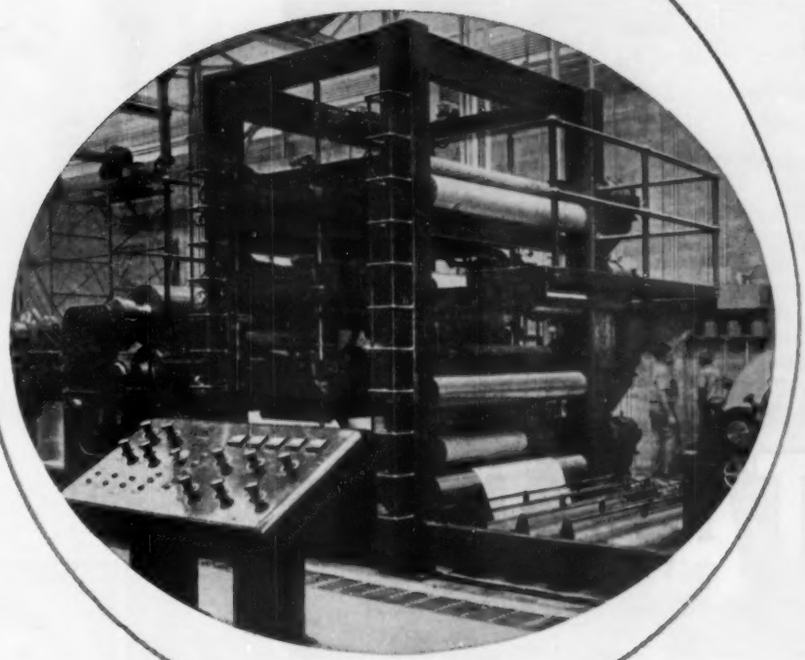
FRANK W. EGAN & COMPANY **Bound Brook, New Jersey**

Designers and Builders of Machinery for the Paper Converting and Plastics Industries

Cable Address: "EGANCO"—Boundbrook, N. J.

REPRESENTATIVES:—ACHARD-PICARD, REMY & COMPANY, PARIS · BONE BROTHERS, LTD., LONDON · H. W. GOTTFRIED, MEXICO CITY

EMANUEL & ING. LEO CAMPAGNANO, MILAN · WEST COAST—JOHN V. ROSLUND, 244 PACIFIC BLDG., PORTLAND 4, OREGON



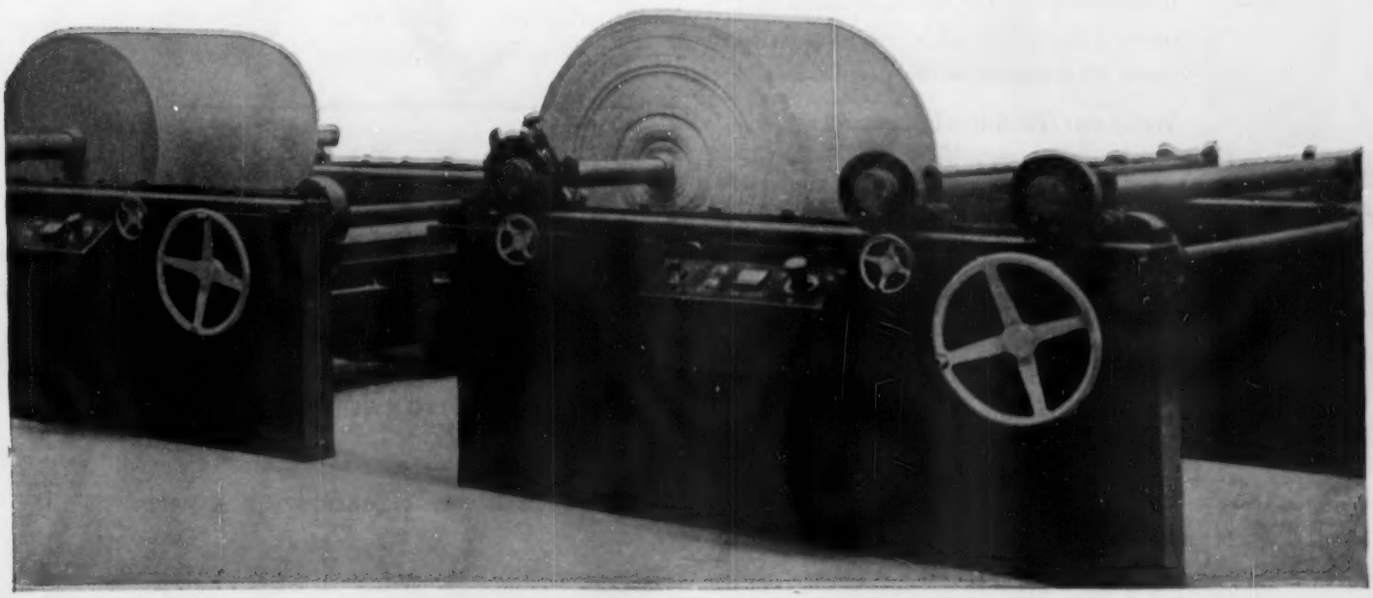
Egan

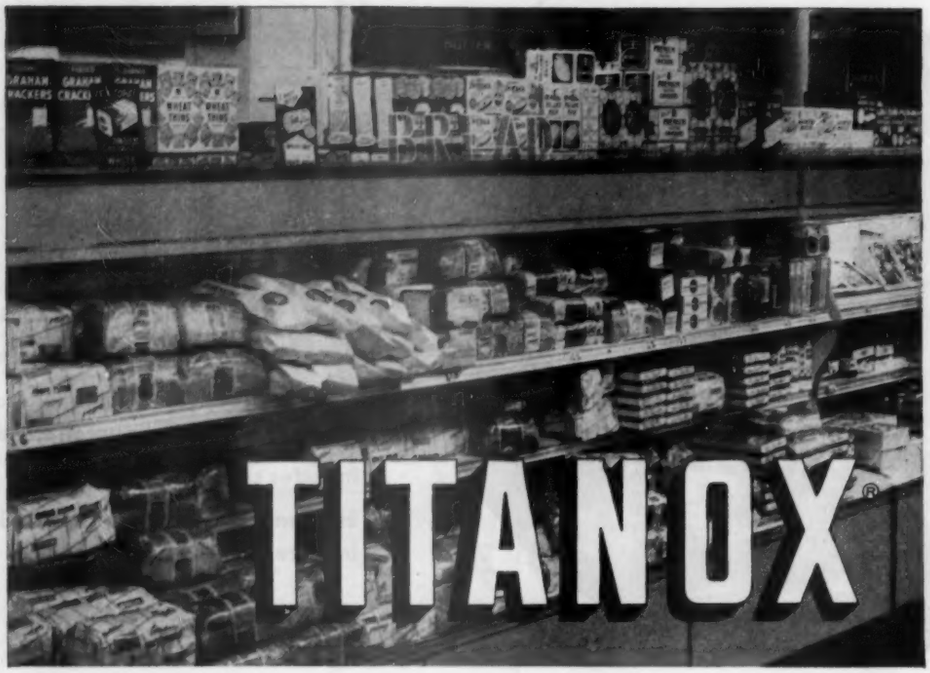
LAMINATOR FEATURES:

- Five ply board lamination
- 86" wide web (trim size)
- Takes .040 inches per ply
- Builds to almost ¼ inch thickness
- Produces up to 450 ft. per minute
- Designed for continuous operation —with fully automatic unroll stands
- Includes slitter, cutter and layboy
- Electronic drive with controls built into readily accessible panels.

operation

Another record breaking installation of Egan design and production, this huge laminator will provide maximum operating efficiency in a field where speed, accuracy and continuous operation are essential to profitable production.





MAKES SALESMEN OUT OF PAPER



In a supermarket, wrappers, labels and packages are salesmen—all competing for recognition by the shopper.

TITANOX titanium dioxide pigments contribute to the display and recognition value of all types of paper used in wrappers and packages. Whiteness, brightness, opacity, color, contrast and other effects are all obtainable with these strongest of white pigments.

Write our Technical Service Department for assistance with your paper pigmentation problems. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; Atlanta; Boston 6; Chicago 3; Cleveland 15; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 9, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

1674

®TITANOX

the brightest name in pigments

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

TWO *Nalco*® SYSTEM ACTION REPORTS

At Oregon Pulp and Paper Company, Salem

PULP AND PAPER PRODUCTION INCREASED AS A RESULT OF *Nalco* SLIME CONTROL PROGRAM

THE PROBLEM Slime in screen lines and screen flow boxes prevented screening pulp fast enough to handle the desired capacity of paper machines.

THE SOLUTION The Nalco Slime Control Program was applied to the system following recommendations of a Flox Company* Field Service Representative. Proper treatments were selected and used in conjunction with regularly scheduled clean-ups and boil-outs. After more than two years, there has been no recurrence of slime difficulties, and the machines are able to operate at the capacity desired.

*The Flox Company, Inc., is the sales and service organization handling Nalco Products in the Northwestern United States, Hawaii and Alaska.



Unretouched photos at right show clean, slime-free condition of screen lines and screen flow boxes at Oregon Pulp and Paper Company 1½ weeks after boil-out.

See next page for REPORT NO. 2

THE *Nalco* SYSTEM • Serving the Paper Industry through Practical Applied Science



NO VACUUM PUMP CLEANING IN OVER A YEAR

(Formerly required every 4 to 12 weeks)

THE PROBLEM Nash Vacuum Pumps had to be pulled down every four to twelve weeks for cleaning of scale formed by unstable water in the water seal. Down time for cleaning and re-installing each pump was approximately 24 hours, and required the labor of five or six men. In addition, too frequent acid cleaning and the abrasive effects of the scale itself were felt to be materially reducing service life of the pumps.

THE SOLUTION Stabilization Treatment, one phase of the Nalco program, prevented scale formation in the pumps. *No pumps have incurred down time for scale removal in more than a year since Nalco Stabilization Treatment started.*

Protective effects of The Nalco System extend beyond scale prevention. A microscopic film formed on metal surfaces protects the metal against corrosion, and many mills extend the Nalco program to pulp washing systems, bleach plants, water lines, hot water heaters, condensers, and other equipment where treatment is needed to stop scale and corrosion damage. Write for full details on Nalco Chemicals and Services which can help you keep your mill at full efficiency.

P.S. This same mill is getting excellent results with Nalco System Slime Control.

NATIONAL ALUMINATE CORPORATION

6216 West 66th Place • Chicago 38, Illinois

In Canada: Alchem Limited, Burlington, Ontario

THE *Nalco* SYSTEM . . . Serving the Paper Industry through Practical Applied Science

THE MEAD SALES COMPANY
230 PARK AVENUE, NEW YORK 17, N. Y.
20 NORTH WACKER DRIVE, CHICAGO 6, ILL.

MEAD
pulp

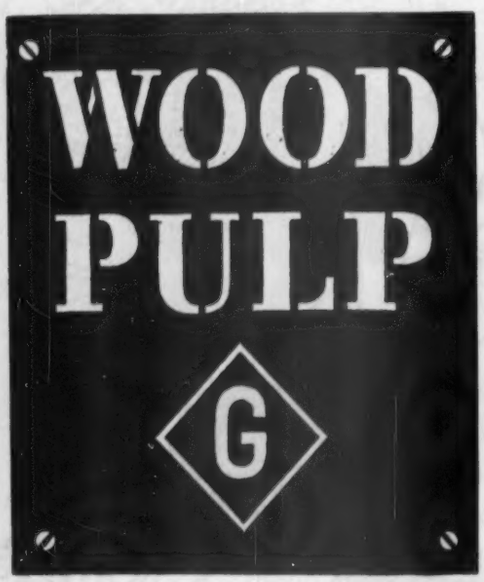
DISTRIBUTORS OF WOOD PULP
BLEACHED AND UNBLEACHED
CHEMICAL AND MECHANICAL WOOD PULP



When Paul Bunyan learned that more timber in the United States is lost to insects than to fire, he filled his lungs with a powerful insecticide and sprayed the whole North Woods in one breath.

A reproduction of this incident from the fabulous life of Paul Bunyan—the seventy-fourth of a series—will be sent on request. It will contain no advertising.

Established 1886



"A decent respect for the opinions of mankind."
THE DECLARATION OF INDEPENDENCE

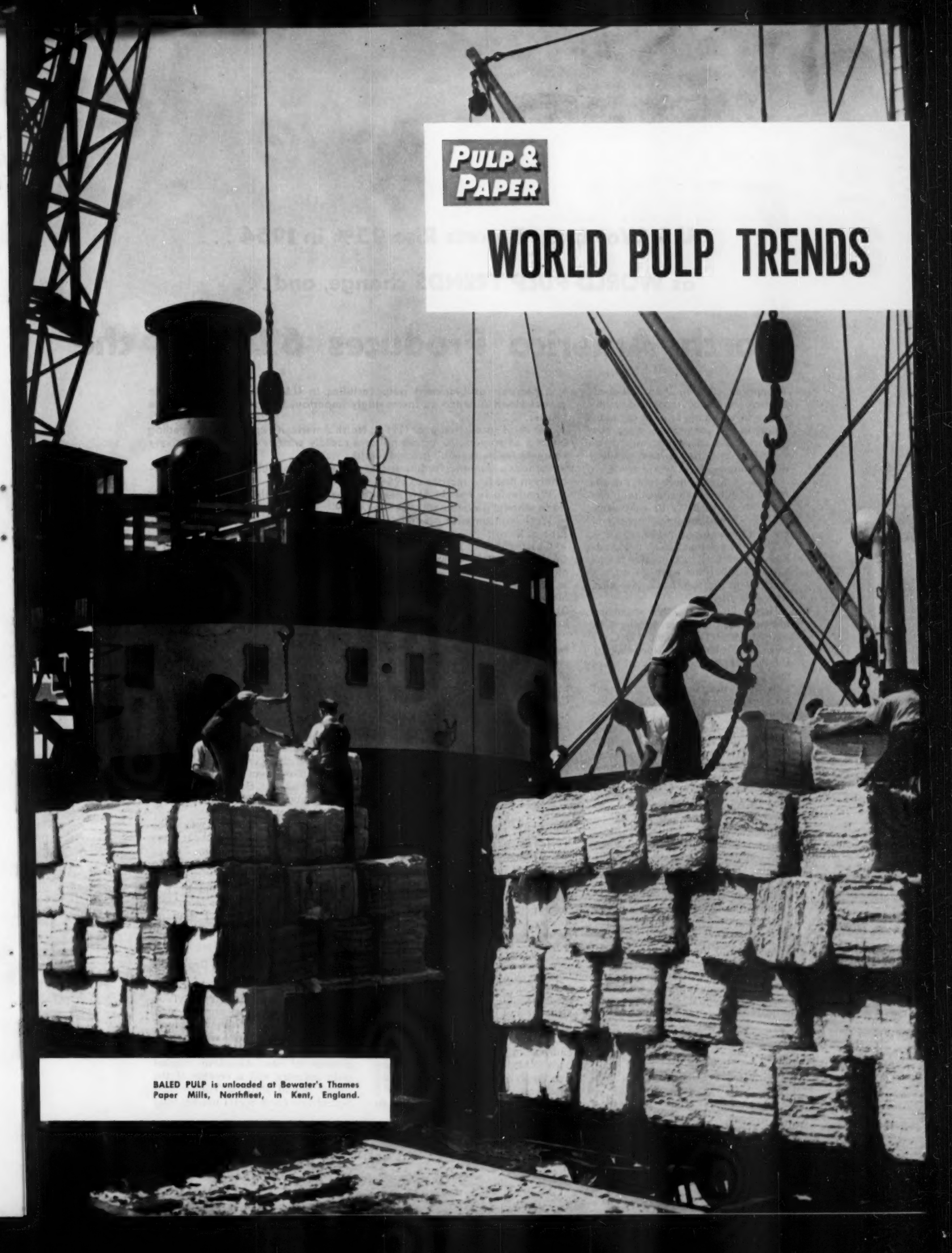
Since its inception, this nation has sought to communicate its ideals to free men everywhere, hoping to earn their esteem and respect. There could be no such flow of thought and information without paper, the product of the Pulp and Paper Industry.

★

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PULP & PAPER

WORLD PULP TRENDS



BALED PULP is unloaded at Bowater's Thames Paper Mills, Northfleet, in Kent, England.

U.S. Woodpulp Exports Rise 95% in 1954 . . .

as WORLD PULP TRENDS change, and . . .

North America Produces 62% of the

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• Expansion of bleached pulp facilities in U.S., Alaska and Canada makes North America an increasingly important world supplier for these grades.

• For third successive year (1954), North American exports are exceeding imports of woodpulp. Export balance rapidly widens as its mills actively compete for markets all around world.

• European demand for imports of chemical woodpulp increased appreciably in first four months of 1954.

• Woodpulp is one of few commodities to enjoy almost universal free trade without government subsidies.

• World consumption steadily rises in direct correlation with rising standards of living.

• Construction of St. Lawrence Seaway under bill finally passed by U.S. Congress in 1954 opens up vast central areas of U.S. and Canada for foreign woodpulp trade—possibly in both directions.

• The longest period of steady pulp prices in North American industry history—now extending over two years—was expected to continue. Dominant strength and growth of North American pulp industries has been the stabilizer.

IN THIS YEAR 1954, worldwide commerce in woodpulp is most certainly going to set some interesting new patterns, and some new records as well. It already has become a billion dollar commodity of world trade.

Already in the first four months of 1954, United States woodpulp exports were up 95%. In that same period, Great Britain's imports of chemical woodpulps were up 38%.

These were just isolated signals flashing brightly in a greatly intensified competition for woodpulp markets in Europe, Latin America, Asia and Africa.

Here's how the active exporting nations rank in this accelerating competition: (1) Sweden, (2) Canada, (3) Finland, (4) Norway, (5) U.S.A., (6) Austria, (7) West Germany.

Sweden, despite a sharp dropoff in its shipments to the U.S. in this year—1954—was more active in other more profitable international markets, throwing inventories into the ring. (Its woodpulp shipments to the U.S. in 1953 and 1952 were considerably below previous years, and took another sharp plunge downward in the first third of 1954—by 40%).

For 1953, Sweden still led all nations in woodpulp exports—its total, 2,385,000 tons. Its chances of expanding on this figure very much are doubtful, partly because inventories apparently are now depleted and it still suffers today from about a 10% annual overcut during World War II. But quality-wise, the Swedes are in the thick of competition and making no concessions where they can get a good price.

Canada was breathing hot on the Swedish collar in 1953, with exports of 1,944,000 tons. Canada holds the ace cards—it is up-grading and expanding more rapidly, and has vast untapped forest resources. It seems assured that in the near future, Canada will move into the No. 1 spot, especially in periods of enticing foreign prices.

Map of
WORLD PULP TRADE
on pages 80-81

No. 3 is Finland, still showing interest in the U.S. market, with 1953 total exports of 1,095,000 tons.

No. 4 is Norway, shipping 662,000 tons in 1953, but with little chance to appreciably increase this.

No. 5 is United States, with 160,000 tons of exports, almost half of it in rayon, acetate, cellophane and special chemical cellulose. Its production in that field alone is being increased in 1954 by close to 1,500 tons a day, all for the market, and a large portion of this being offered overseas. The U.S. market pulp industry is vigorously active in the world marts in 1954, a development that very few dreamed of during its long history of dependence on imports. This minor miracle has been made possible by better forest management and utilization, every market pulp manufacturer in America today being virtually assured of an endless supply of fiber. And it has been achieved without any protective tariffs or government assistance whatever.

The U.S. will increase greatly in stature as an exporter of woodpulp, and may very possibly make a bid for No. 4 place.

New Records Are Expected

Just North America and Scandinavia together—other market suppliers would be minor—are expected to set a new record in 1954 by producing more than 5,200,000 tons of pulp for market. Scandinavia would supply about 55%; North America about 45%.

Virtually half of this would be for United States mills, about one-fourth for Great Britain. France and West Germany are expected to buy more pulp, too.

An expert observer told PULP & PAPER: "With the changes in capacities and trade going on, I wouldn't venture a guess on 1954 figures at this stage."

What Ossian Anderson Dreamed

This intensified American activity recalls one man who had this vision over a quarter of a century ago, when hardly anyone else would have thought such a day would ever come. It was Ossian Anderson, a pioneer of the American market pulp industry and a creator of the Puget Sound Pulp & Timber and Soundview (now Scott) market pulp

World Supply

mills. He said: "I want to sell in every country in the world, even if it is only one ton!" He came very near doing it, too, even in his time!

The No. 6 country in this world market is possibly a surprise to some—Austria, with exports of 132,000 tons, made possible by U.S. financial aid in rehabilitating and building Austrian mills (see Austria section of this review). American industry has been unable to find out from Harold Stassen or his aides how much tax money has gone to Austria, but the record shows the resurgence of this industry.

No. 7—West Germany, revealing the most phenomenal recovery powers of any country in Europe, shipped 31,000 tons in 1953.

Switzerland shipped 11,000; Yugoslavia, 11,000; New Zealand 6,000 (probably all to Australia); Portugal, 4,000; Holland, 2,000 (but also a considerably larger amount of straw pulp); Mexico, an odd 1,000 tons of groundwood; Japan, less than 1,000 tons chemical.

Of these seven nations, New Zealand, with the greatest man-made forest in the world today, has the greatest opportunity to expand. And the only one with any such serious intentions. They discovered accidentally that a Monterey pine transplanted from California, *grew four times as fast in New Zealand!*

Details on all these presently minor world market suppliers will be found in the sections devoted to separate nations in this issue. Yugoslavia (happy thought that its Tito is considered a Western ally) has a new bleach plant in its Prijedor sulfite market pulp mill, which now has 7,000 tons capacity. Switzerland's only sulfite market pulp mill, Attisholz, has long been an exporter. Also one Swiss groundwood mill. And as reported in sections on Portugal in these WORLD REVIEW NUMBERS, its unique Caima Pulp Co., making a fine bleached sulfite from eucalyptus, ships all over the world. Its capacity is 7,400 short tons.



KETCHIKAN PULP CO., first year-around permanent industry in Alaska, is second mill in history, of commercial size, to make pulp on magnesia base sulfite recovery system. In this high brick building pulp is cooked, washed, multi-bleached by push buttons throughout.



BALES OF SULFITE PULP from Weyerhaeuser Timber Co. mill are loaded at Everett, Wash., dock.

What About the Russian World?

WHAT ABOUT THAT vast part of the world behind the Iron and the Bamboo Curtains? On May 17, 1954, James L. Ritchie, executive director of the U.S. Pulp Producers Association, issued a "guesstimate" that total woodpulp production of the Red World was about 4,000,000 tons. The only Red nation that ever was much of an exporter was Czechoslovakia, which shipped some sizable quantities of pulp to the U.S. since the war. If its record were available, it could be revealed as the No. 5 or 6 country in 1953 exports, instead of U.S. or Austria. Czechoslovakia made 425,000 tons in 1953.

Soviet Russia itself shipped about 2,000 tons of woodpulp in 1952 to the Western World, but there were no 1953 or 1954 data available. Japan shipped about 2,000 tons in 1952 and less than 1,000 in 1953, but it is so short of pulp for rayon and paper that it surely will not become a serious exporter of pulp unless new resources are found.

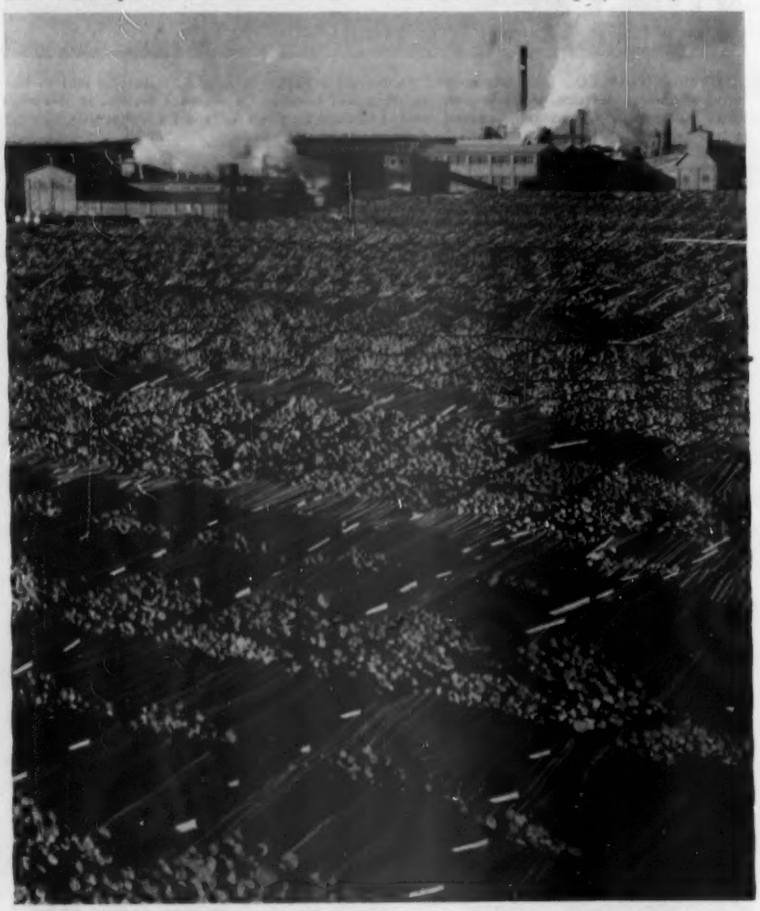
Total woodpulp shipped from one country to another in 1925 was only 3,900,000 tons. In 1953 it was 6,449,000 tons, as compared with 5,615,000 tons in 1952, according to the U.S. Pulp Producers and the Canadian Pulp & Paper Association. Higher it surely will go in 1954, but how high, few experts dared to guess as this was written.

But with assistance of some experts, PULP & PAPER is able to make these estimates as to the dollar value of market pulp:

Est. Total Values of Market Woodpulp

*Total	$1,400,000,000
**Total Exported	$1,000,000,000

**Sold by manufacturer, either inside or outside his country. ** Sold outside the country of manufacture.*



BLEACHED KRAFT PULP will be made from this vast supply of pulpwood at Skutskars mill of Stora-Kopparberg, Sweden.

It should be noted the above figures are in billions, and very few basic commodities reach these figures in world trade. Woodpulp is, furthermore, unusual because it is made from a renewable resource (trees), growing faster than it is used, and it is one of the very few commodities and, perhaps the most important one, to enjoy almost universal free trade. Seldom have there been government subsidies for it and none are known to exist today (U.S. subsidizes other commodities; in Scandinavia, there have been tax manipulations interpreted as subsidies).

The production of woodpulp has steadily and rapidly increased from insignificant amounts 50 years ago. The shortage of rags, in Europe, particularly, and in America, too, has stimulated markets for woodpulp for fine quality papers. Refinements of woodpulp and steady supply have pushed it far ahead of cotton linters for use in rayon, acetate, cellophane, etc. The discovery of new processes for use of hardwoods have potentially opened up hitherto extensive unused forests in tropical and Southern climes. But presently their remoteness from builders and machinery manufacturers and markets are deterrents.

World production of woodpulp has more than tripled since 1925! In 1954 it was close to 43,000,000, including probably a low estimate of 4,000,000 tons for the Communist World. But if that seems an amazing increase from 1925's 13,962,000 tons, consider what has happened in North America:

In the same period of time, North American production has quadrupled.

World vs. North America

Woodpulp Produced ('000's of short tons)

	World	*No. America*	*No. America as % of World*
1925	13,962	6,735	48.2
1929	18,980	8,884	46.8
1933	17,581	7,256	41.3
1937	26,706	13,834	51.8
1953	42,739 (est.)	26,299	61.5

U. S. Pulp Producers Assn. & Can. Pulp & Paper Assn.

North America Now Leads

For many years, it may be seen, over half of the world's woodpulp has been produced in the U.S. and Canada. It is not so well known that for the three successive years now—beginning in 1952—the U.S. and Canada have exported more woodpulp than they have imported. They have become self-sufficient in the

	1952			1952		1953			1953	
	Capacity	Production	Consumption	Imports	Exports	Capacity	Production	Consumption	Imports	Exports
TOTAL CHEMICAL	27,366	25,251	22,692	4,562	4,566	28,212	25,477	25,159	4,943	5,310
North America	18,492	16,474	16,179	1,733	1,887	19,365	17,629	17,822	1,927	1,876
Latin America	198	161	416	277	0	198	170	439	261	0
Europe	7,543	7,703	5,050	2,412	2,677	7,399	6,526	5,547	2,541	3,428
Northern	5,478	4,456	1,498	7	2,530	5,486	4,596	1,424	6	3,250
*Eastern	248	1,447	67	83	7	58	30	69	29	11
Western	503	372	2,030	1,800	9	505	396	2,428	1,898	9
*Central	1,314	1,428	1,455	522	131	1,350	1,484	1,626	608	158
South Africa	23	23	25	-	0	27	27	30	7	0
Egypt	0	0	5	5	0	0	0	5	5	0
Asia & Pacific	1,110	890	1,017	135	2	1,223	1,125	1,316	202	6
TOTAL MECHANICAL	15,813	14,727	12,686	1,053	1,073	16,018	13,262	12,800	1,071	1,139
North America	10,056	8,651	8,687	257	255	10,202	8,670	8,660	262	228
Latin America	200	165	172	10	3	200	164	177	13	1
Europe	4,466	5,289	3,203	780	815	4,494	3,743	3,260	790	910
Northern	2,678	2,192	958	0	807	2,678	2,076	984	0	892
*Eastern	32	1,293	27	3	0	32	31	32	3	0
Western	759	614	1,347	742	1	772	627	1,322	759	2
*Central	997	1,190	871	35	7	1,012	1,009	931	28	16
South Africa	-	-	-	-	0	-	-	2	3	0
Egypt	0	0	-	-	0	0	0	-	-	0
Asia & Pacific	1,091	622	624	6	0	1,122	685	692	3	0
GRAND TOTAL	43,179	39,978	35,378	5,615	5,639	44,230	38,739	37,959	6,014	6,449

** Capacity figures in these areas are not available in every instance. NOTE: Imports and Exports include inter and intra zonal movements.*

World Woodpulp Summary—What Free World Produced and Traded

(Rest of World—Russia and Satellites—Estimated to have Produced 4,000,000 tons in 1953. Sources—U. S. Pulp Producers, Canadian Pulp & Paper Assn.)

(Consumption, presumably, is production plus imports, less exports)

(In Thousands of Short Tons of 2,000 lbs.)

bleached chemical grades. These grades, improved and refined, have become their chief export stock in trade, too.

The production rivalry of Europe and North America is interestingly revealed in these statistics dating from 1921:

Woodpulp Production—Europe vs. North America

(millions short tons—2000 lbs.)

	1921	*1929*	*1937*	*1946*	*1953*
Europe	3.3	8.7	12.5	6.2	10.3
N. Amer	4.4	8.7	11.5	16.9	26.3
Totals	7.7	17.4	24.0	23.1	36.6

In this period of 32 years, North American output has increased eight times, while Europe's increased three times. The total increase is about five times.

More knowledge about growing and using trees has made this possible. But further efficiency and greater production will be in demand, because this increase in woodpulp production has been in direct correlation with improved standards of living in producing and consuming areas of the world.

North Climes Have Best and Most

Estimates of forest acreage are nearly always a bit on the wild side, as any forester knows, especially in virgin or little known areas of the world. Even in the United States, where surveys have been going on for years, the foresters are continually making substantial revisions. But here is what the United Nations last "guestimated" as world forest resources (in Southern areas this is virtually all hardwoods—the only coniferous forests, still preferred major basis for most woodpulps are in North Asia and Russia, Scandinavia, North Europe and North America):

Forested Areas of World

	Acres
Europe	313,000,000
U.S.S.R.	2,273,000,000
North, Central America	1,887,000,000
South America	1,843,000,000
Africa	2,266,000,000
Asia	1,166,000,000

This totals over 9 billion acres, but much is presently rated inaccessible. Inaccessible is about two-thirds in Russia and Canada, about one-third in U.S., and nearly all in South America, Africa and the rest of Asia. So this would leave about 700 million accessible acres in North America. Against this, Europe has about 313 million productive acres, of which 126 million are in Scandinavia. These are "the chips" in any world poker game between North American and Scandinavia for pulp markets.

What Makes Pulp Market Tick?

SINCE 1938, SCANDINAVIA'S woodpulp production seems to have stabilized around 10 million tons or less annually, while North America's has climbed steadily to over 26 million, more than doubling in that time.

Perhaps more Scandinavian wood now used for lumber, firewood, etc., would go into pulp if there were better prices. Some difficult areas would be logged if prices justified. But to some extent, the same things could be said, and maybe with even more assurance, in Canada and the U.S.

Canada, right in its existing mills today, has a potential for making much more pulp for market, instead

of paper in some cases. There has been, and can often be, more profits in quality market pulps than some paper, and also depending on where they are made. And where sold.

Before accepting too many generalities on the basis of new statistics, it should be noted that the tremendous U.S. market for woodpulp within its own borders (19,400,000 tons consumed in 1953), still requires substantial imports. U.S. still must import some unbleached grades and some mechanical pulps to meet its requirements.

Europe is coming back strongly economically, several 1954 observing visitors abroad reported to PULP & PAPER. These include G. N. Carleton, president of Detroit Sulphite Pulp & Paper; Reed R. Porter, executive secretary of the Association of Pulp Consumers. New York; Anson Moody, vice president of Simpson Logging Co. and manager of Everett Pulp & Paper, Dick Sandwell, Canadian pulp and paper mill builder, and others. Europe's pulp needs increase as it rises to its feet from war blows.

Europe is expected to require about 650,000 tons more of woodpulp in 1954. Much of this, it is expected, will come from North America. Britain alone requires substantial increases in 1954 and in 1955, its needs from North America again may rise sharply.

The three Scandinavian countries exported over 3½ million tons of pulp in 1952, over 2 million going outside of Europe. Total European exports rose to over 4 million tons in 1953, but this included about 500,000 tons from inventory. Therefore, it appears, Europe must, of necessity, look to North America for enlarged 1954 and 1955 needs.

Effect of St. Lawrence Seaway

The opening of the St. Lawrence Seaway, under the bill finally approved in 1954 by the U.S. Congress, is expected to permit large ocean-going vessels to move in and out of the great central manufacturing and producing areas of Canada and the U.S. and this will undoubtedly include woodpulp movements.

Woodpulp world trade, of course, will be influenced by the outcome of problems of war or peace. It has essential military needs as nitrocellulose to fire guns. This use will become much greater than ever before in history, if there is war.

But aside from this question of war, world pulp trade currents depend basically on the relative costs of production in various parts of the world and availability of paper and rayon making materials at economic cost in the markets.



UNBLEACHED KRAFT PULP from New Zealand Forest Products Kinleith pump mill is loaded for Australian newsprint industry at the port of Tauranga, North Island of New Zealand.

Asia and Africa consume only one-twentieth as much woodpulp as North America. This gap will narrow with the spread of literacy and rising standards, but how soon? And what effect would war have?

Dollars May be Found for Pulp

Britain and Continental Europe are the markets most sought after in 1954. Britain and Continental Europe imported over 3,200,000 tons of woodpulp in 1953 and exported only a trifling amount—less than 200,000 tons. But Scandinavia's proximity to this market has been a traditional reason for many to look upon all of Europe as a net exporter of pulp. With Scandinavia included, European exports totaled 4,300,000 tons in 1953, and net exports were close to 1,000,000 tons.

Before World War II, these net exports were over the 2,000,000 mark. While the Scandinavian countries provide about 90% of pulp exports, it is notable that they have only around 60% of paper exports for all Europe.

In this connection, manufacturers of market pulp in North America generally believe that Britain and other countries will find the dollars to buy woodpulp as the "raw material" for paper products to which *they can add economic value within their own boundaries.*

In other words, the trade problem as it relates to dollars and exchange shortages is somewhat different in the case of woodpulp than that encountered in the case of high valued end-products which dollar countries seek to sell. Woodpulp is only a semi-manufactured product.

At the same time, current figures indicate that the recovery in the pa-

MECHANICAL WOODPULP DATA BY COUNTRIES

By PULP & PAPER from reports of U. S. Pulp Producers and Canadian Pulp & Paper Assn.

(For 1953—in Thousands of Short Tons)

	Capacity	*Produced*	*Imports*	*Exports*
Canada	4,209	3,740	41	1,716
U.S.A.	15,156	13,889	1,886	160
Argentina	39	31	51	0
Brazil	100	81	104	0
Chile	0	0	33	0
Colombia	0	0	4	0
Cuba	0	0	30	0
Mexico	59	58	35	0
Venezuela	0	0	4	0
Finland	1,609	1,246	0	875
Norway	694	573	6	332
Sweden	3,183	2,777	0	2,043
Bulgaria	na	na	2	na
Greece	0	0	20	0
Turkey	14	11	3	0
Yugoslavia	44	39	4	11
Belgium	49	38	105	5
Denmark	0	0	59	0
Eire	0	0	23	0
France	334	279	446	0
Britain	15	13	1,019	0
Holland	66	33	150	0
Portugal	10	9	13	4
Spain	31	24	83	0
Austria	392	357	fr	122
Czechoslovakia	na	320	na	na
West Germany	643	588	325	31
Italy	216	143	232	0
Switzerland	99	76	51	5
So. Africa	27	27	7	0
Egypt	0	0	5	0
Australia	75	75	47	0
India	1	1	23	0
Japan	1,132	1,040	120	fr
New Zealand	15	9	12	6
TOTAL	28,212	25,477	4,943	5,310

na—Not available. Other countries not available. fr—Fraction of 1,000 tons.

per industry in Europe, as well as Latin America and other markets, has induced the Scandinavian countries to reduce their shipments to U.S. and to concentrate on these other markets. However, all markets are competitive, after all, and French, Spanish and Belgian paper industry leaders have written to PULP & PAPER saying they are pleased to find a choice of more pulp sources available to them.

United Nations Report

Disputed excerpts from a United Nations FAO and UN European Economic Commission joint report on European timber prospects were published in this section of this REVIEW NUMBER last year. Since then, the report has been widely discussed and it has met with considerable adverse comment. Criticisms were that it was too optimistic of what Europe could achieve in forest growth and use, that it made insufficient allowance for use of waste fibers in papermaking such as straw, etc., and that it had no economic nor historic basis for predicting such a rapid growth in demand.

Europe was a heavy importer of pulpwood from Russia, Poland and eastern Europe until recent years. It no longer receives some 3 million cubic meters of pulpwood from those areas, and this has been a serious loss, more noticeable today as demands increase.

The UN study predicted a "dynamic forest policy" in Europe could increase its pulpwood cut from 36 million cubic meters in 1950 to from 54 to 63 million by 1960. This and a resumption of trade with Soviet Russia, it predicted, would help meet an increased demand for pulpwood of 45% to 72% by 1960. It further speculated that forest production might again be increased in Europe after 1960. Furthermore, Europe could still maintain its pulp export balance of about 1,000,000 tons.

It envisaged a woodpulp producing capacity in East, Central and North Europe of 17,380,000 tons annually. Free Europe's 1953 capacity was only 11,900,000 tons, according to U.S. Pulp Producers.

What Is Happening in Europe?

THE UN REPORT made the statement that eastern and central Europe is planning an expansion of 770,000 tons of woodpulp capacity, which would give it 2,230,000 tons and this, presumably, is almost wholly or wholly in Iron Curtain countries.

An American observer touring Europe in 1954 could not substantiate these and other expansion plans mentioned by the UN document.

Only Finland is reported to have excess wood supplies at the present prices of wood and pulp. As a result, most Scandinavian expansion is expected to be limited to improved production in existing mills and to new semi-chemical mills.

Sweden is gradually shifting from 6 to 7 day operations. Visitors to Sweden have made similar reports to PULP & PAPER. There are plans for one new 50,000 ton bleached kraft pulp mill by 1960 in South Sweden.

Germany now imports 40% of her wood from Finland, France and Austria.

France is talking of new kraft mills in Southern France and of independence from former Swedish suppliers in letters received by PULP & PAPER, but this may be largely wishful thinking as high production and construction costs are barriers.

France is hopeful of getting pulp from Africa—from the alfa grass and esparto in North Africa and from hardwoods in Middle Africa. Belgium is looking toward the Congo—papyrus grass and hardwoods. Little headway has been made in these projects since first reported a couple years ago in this REVIEW NUMBER. But if France is able to modernize and build kraft mills in France, and establish its own pulp supply, it is virtually a certainty that protective tariffs will be imposed.

Norway is expected to make very little change in her pulp capacities except for adding semi-chemical

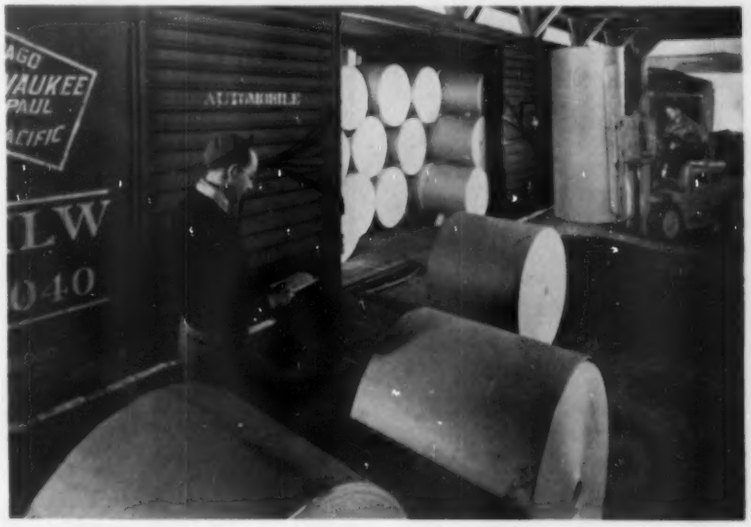
CHEMICAL WOODPULP DATA BY COUNTRIES

By PULP & PAPER from reports of U. S. Pulp Producers and Canadian Pulp & Paper Assn.

(For 1953—in Thousands of Short Tons)

	Capacity	*Produced*	*Imports*	*Exports*
Canada	5,819	5,175	3	228
U.S.A.	4,383	3,495	259	0
Argentina	28	15	10	0
Brazil	121	110	0	0
Chile	23	16	fr	0
Colombia	0	0	3	0
Mexico	28	23	fr	1
Finland	992	827	0	220
Norway	859	637	0	330
Sweden	827	612	0	342
Greece	0	0	3	0
Turkey	10	10	0	0
Yugoslavia	22	21	0	0
Belgium	66	61	17	0
Denmark	6	4	20	0
Eire	14	9	3	0
France	364	320	66	0
Britain	185	145	595	0
Holland	71	63	42	2
Portugal	0	0	3	0
Spain	66	25	13	0
Austria	140	138	0	10
Czechoslovakia	na	99	na	na
West Germany	558	513	10	0
Italy	220	171	17	0
Switzerland	94	88	1	6
So. Africa	fr	fr	3	0
Egypt	0	0	fr	0
Australia	87	51	1	0
India	6	4	2	0
Japan	997	599	0	0
New Zealand	32	31	0	0
TOTAL	16,018	13,262	1,071	1,139

na—Not available. Other countries, not available or had no groundwood production or trade.
fr—Fraction of 1,000 tons.



ROLLS OF PULP from Weyerhaeuser Timber Co. are placed by fork-lift truck into freight cars for rail shipment throughout the U.S.

pulp tonnage and perhaps some sulfate capacity. Both pulp grades have a No. 1 priority in Norway on building materials due to ability to use pine and sawmill waste.

For all of Europe, experienced observers do not expect any more than a 2,000,000 tons per year expansion by 1960, at the most. This is borne out substantially in the scores of exclusive reports which came to PULP & PAPER this year and are reported in the section on Europe in this REVIEW NUMBER.

Paper Use Varies Widely

As indicated, one of the most impelling factors for increased woodpulp consumption is the growth of population and the growth of per capita consumption.

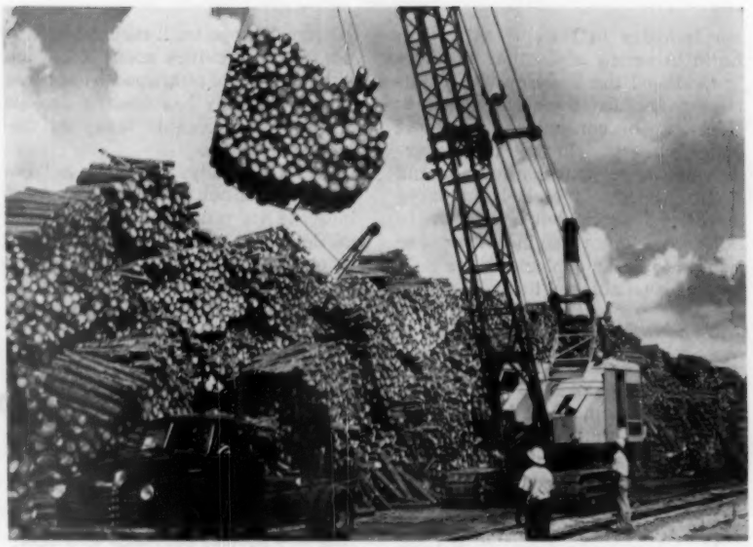
The latest figures show worldwide per capita consumption of paper for 2,213,201,000 inhabitants at 42.38 lbs. (APPA 1950 statistics). For the 1,200,000,000 inhabitants of Asia, it was only 3.30 lbs. per person. For Africa's 132 millions it was only 6.47. For U.S. and Canada on the other hand, it was 371.37 lbs. for 165,534,000 people, for Scandinavia's 14,310,000, it was 101.87; for the rest of Europe's 553,000,000 people, it was 42.47. And for Latin America's 157,000,000, just 17 lbs.

The United Nations gives somewhat different figures, based on all woodpulp consumption:

Area	*1949 Population*	*Consumption of woodpulp and products (lbs. per capita)*
Europe (excluding USSR)	346,000,000	44
North America	163,000,000	242
Latin America	135,000,000	13.2
Africa	181,000,000	4.4
Asia (excluding China)	762,000,000	4.4
Pacific area	12,000,000	101.2

Doubling of the per capita consumption of pulp in the low consuming areas of Latin America, Africa and Asia during the next 10 years would require about three and one-half million tons of woodpulp production additional per year.

Expanding uses of woodpulp continue in the rayon-acetate-cellophane-plastics fields, and these are discussed in another article, especially written for this issue by Rex Vincent. Woodpulp has become the main and most stable raw material for these products. Whereas some textile uses have declined, the rapidly expanding uses for tire cord, for cellophane, for carpeting, etc., keep demand high. World production continues to rise and here, especially, the new dissolving pulp mills in the U.S. look for markets—in Europe and in Asia.



UNLOADING PULPWOOD to feed Rayonier's new cellulose mill at Jesup, Georgia. This mill requires over 200,000 cords annually—is rated close to 100,000 tons pulp capacity annually.

What Has Happened in America?

INCIDENTALLY, THE NEW mills coming into production in the U.S. in 1954—close to 1,500 tons per day—are nearly all for dissolving pulps, or in some cases for dissolving or paper pulps, depending on current demand.

In midyear, the new Ketchikan Pulp Co., built by Puget Sound Pulp & Timber Co. with support and partnership of American Viscose, started up in Alaska, and almost at the same time Buckeye Cellulose in Florida and Rayonier in Georgia launched new cellulose mills. American Viscose will be a major user of the first pulp ever made in Alaska, and Avisco, incidentally, is the world's largest consumer of dissolving pulps.

A little mill, Valentine (a Valite resins subsidiary) in Louisiana, started up making some bagasse quality pulp. Also new bleached sulfate market pulp capacity was to be available from the Bowaters newsprint mill, completed in midyear in Tennessee.

A new major factor in the quality bleached sulfate market pulp field was East Texas Pulp & Paper Co., being rushed to completion close to an Oct. 15, 1954 deadline. *Life-Time* magazines and Houston Oil are principal owners of this mill and the vast timber resource behind it. In Canada, Alaska Pine & Cellulose completed a big improvement program. Celanese Corp.'s (Columbia Cellulose) mill in British Columbia sold its first pulp to Europe.

In late 1953 more quality bleached kraft was being produced by the big new Weyerhaeuser mill in Everett, Wash., and the doubled capacity of MacMillan & Bloedel at Harmac, B.C. I.P. doubled its cellulose output at Natchez, Miss., Bowaters added sulfite in Newfoundland, and other Canadian and U.S. mills added to their offerings.

How Much for Paper Mills?

Market experts have been sharpening pencils to figure out how much of the added production of market woodpulp from five big new 1954 mills will be available to paper mills. The new mills are Ketchikan Pulp, Rayonier in Georgia, Buckeye Cellulose, Bowaters in Tennessee and (by Oct. 15) East Texas Pulp & Paper. The first three mills are designed for dissolving pulp but, of course, can make paper grades.

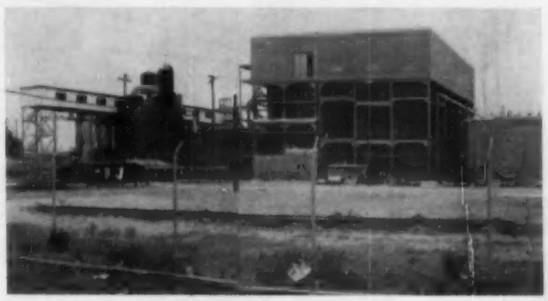
Best figuring is close to a total of 160,000 tons annually for paper.

King of the Fiber World

New paper uses are expected to increase demands for woodpulp, as well as population growth. There is no other fiber so plentiful as wood; none that can be reproduced so plentifully. Other vegetable, straw, stalk or waste fibers may fill small local needs, where it is profitable to produce pulp from them. But woodpulp still is the king of the fiber world.

In the Sept. 1952 issue, PULP & PAPER presented an unusual report on how the milk container alone has produced a 300,000 ton market for chemical bleached pulp. And how this is growing to over 500,000 tons.

In the July 1954 issue, PULP & PAPER presented a similar exclusive and significant report showing how, in just one season, the production of lemons and lettuce in California



IN THIS JUST COMPLETED mill of Buckeye Cellulose, Foley, Florida, viscose, acetate and paper pulps will be made. Picture was taken just before start-up of mill.

was virtually *entirely switched over* from wood boxes to paper containers. And oranges, apples, etc., are also rapidly going into paper containers, it was reported.

Multiwall bags are now being made for innumerable things from all kinds of heavy materials to potatoes. Paper is wrapping big motors and furniture and machines. In this REVIEW NUMBER is a report on how the frozen foods industry and other food packaging still grows by leaps and bounds, using more paper, or woodpulp for cellophane. Wet strength paper uses are literally multiplying.

Quality of Pulps Rise

Multistage bleaching is becoming a common practice, especially in the market pulp field. Added stages up to six or eight in all, and entire new bleach plants have been added at a number of mills. The use of chlorine dioxide bleaching designed to produce very high brightness has been made possible by manufacturing the ClO_2 at point of use, overcoming transportation dangers, and eliminating other hazards. Several mills have added this process. A few have provided for it, but are not yet using it—may only use it periodically.

An increase in semi-chemical pulping continues and along with it the increased uses of hardwoods in every area of the U.S. Aspen, oak, birch and beech are used in East and Midwest, revolutionizing the industry in some areas, and hardwoods, especially gum, are coming into more use in the South. In the Far West, alder, a weed tree, is going to be used as a mixture.

Semi-chemical capacity in the United States, with some 30 mills of this type now in existence, increased to 1,263,000 tons in 1953, a 25% jump in just one year.

Why Woodpulp Prices Are Stable

As has been suggested already, price is a factor of influence in the flow of pulp to markets in every country and every continent.

The U.S. market, as this issue went to press, was continuing to enjoy the longest period of price stability in its history. Since mid-1952 this situation has existed, and most observers saw no particular reason why it should not continue, especially with the expanded American production flowing into markets abroad.

The dominant position of North American pulps in the U.S. market was described by some observers as a steadying influence. A few major suppliers have had the inherent strength, as well as the will, to hold steady to prices, and thus exert a steadying influence on the whole market.

Incidentally, this steady pulp market has been a most important factor in the resultant steady prices in the paper market. It was bound to have this result. Under these conditions, paper buyers do not hold off buying in hopes of lower prices, thereby precipitating further price pressure, and neither do buyers in the paper market overstock in anticipation of higher prices, thus adding artificially to price pressure. Several paper manufacturers have praised the steadiness of the pulp market and expressed a desire that it so continue.

In Europe in 1953, woodpulp prices gradually climbed, quarter by quarter, until they were about $10 per ton above comparable U.S. prices, with the exception of unbleached sulfite which remained at U.S. levels. This is a reflection of the improved demand in Europe and it was largely responsible for the elimination of the Scandinavian pulp inventories accumulated in 1952. There had been shutdowns of some Finnish mills because they were unprofitable, but they were in full production again. The outlook was for stable prices for the balance of 1954 in Europe.

Some Trends in America

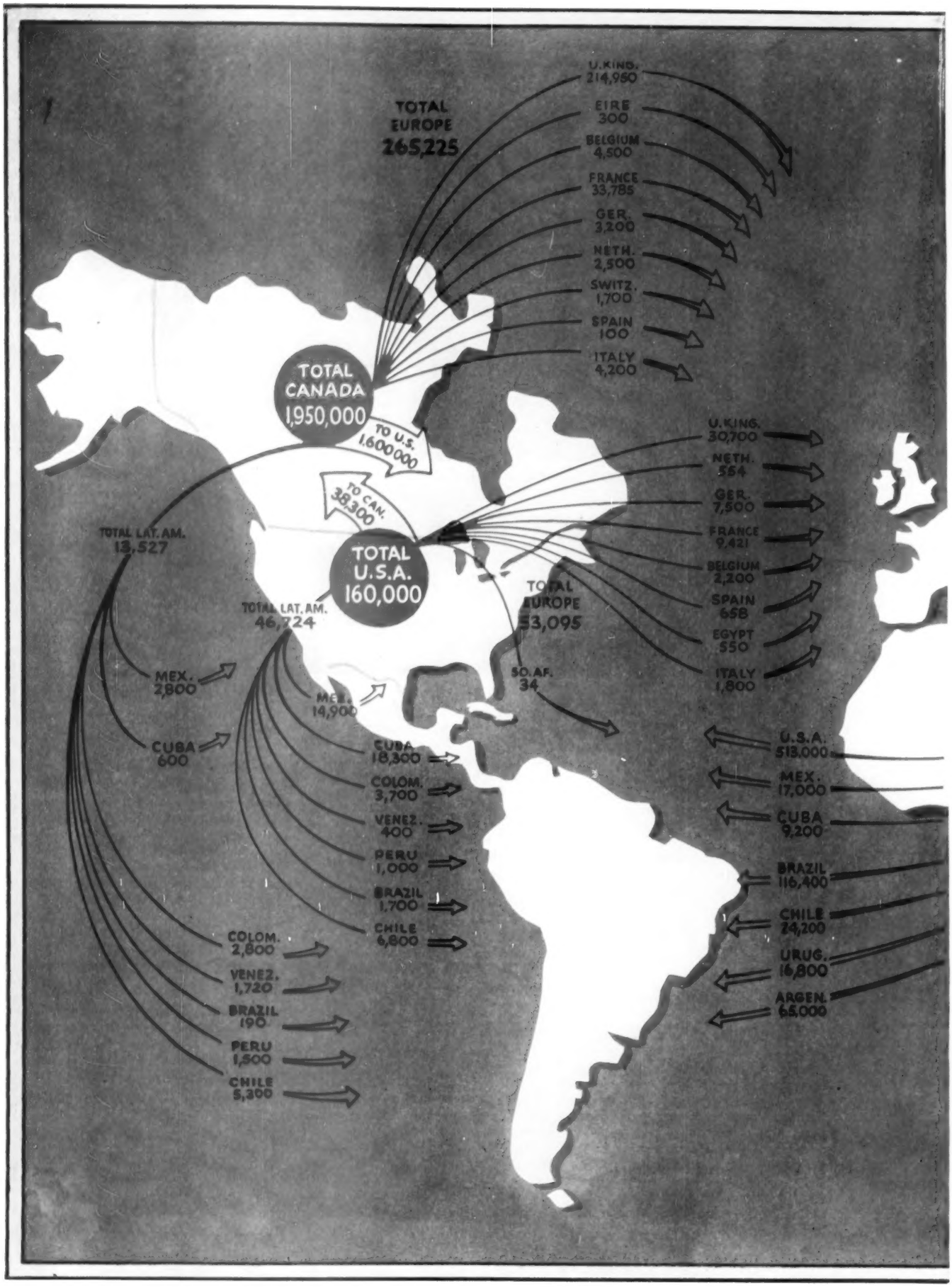
As this was written, the U.S. was by far the largest consumer of Canadian market pulp. Not of Swedish any more, as England was first, Germany second. There is no doubt that some eastern Canadian mills were feeling the pinch of costs against price, as their wood and labor costs climbed. The Far Western mills of Canada and U.S., both able to use what formerly was considered waste wood of logging and lumbering, by better refining processes, were thereby strengthening their economic stability as well as their raw material positions.

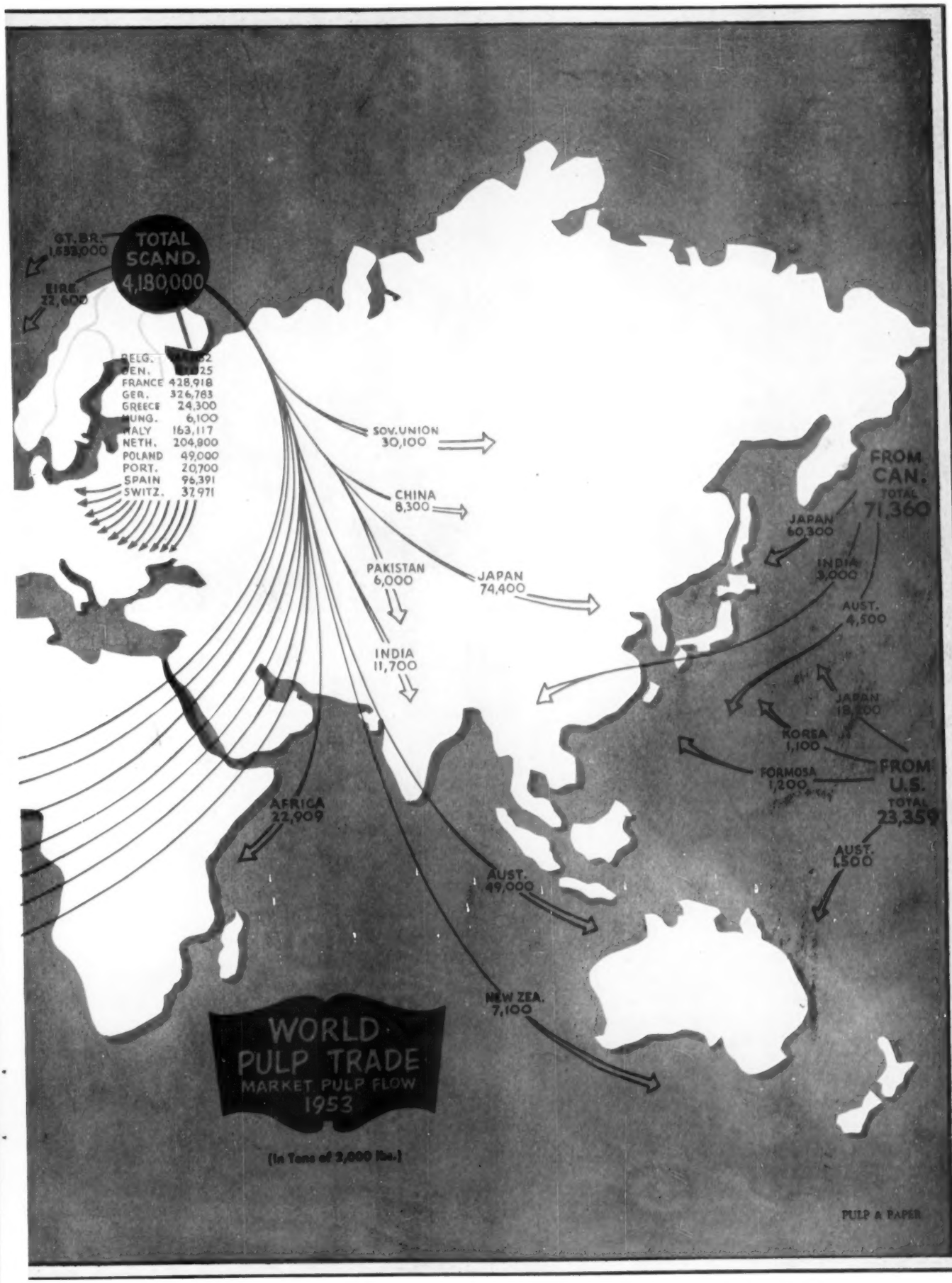
The consumption trend everywhere is primarily away from unbleached to bleached pulps. The increase in capacity of bleached pulps in America leaves Scandinavia dominant in unbleached grades. For Scandinavia now produces 72% of unbleached sulfite and 73% of unbleached sulfate pulps. But there are no increases of unbleached market pulps in sight anywhere in the world.

Canada is looking to Japan and the Orient for more pulp markets and it is shipping considerable pulp to Japan this year. It faces a new, fast growing competitor for Australian markets in New Zealand. Peaceful conditions in the Orient would be a tremendous factor for increased business for Canada as well as some U.S. market pulp suppliers.

What Is Outlook for Dissolving Pulp?

See article by Rex Vincent on page 200


TOTAL EUROPE 265,225
U.KING. 214,950
EIRE 300
BELGIUM 4,500
FRANCE 33,785
GER. 3,200
NETH. 2,500
SWITZ. 1,700
SPAIN 100
ITALY 4,200
TOTAL CANADA 1,950,000
TO U.S. 1,600,000
TO CAN. 38,300
TOTAL U.S.A. 160,000
U.KING. 30,700
NETH. 564
GER. 7,500
FRANCE 9,421
BELGIUM 2,200
SPAIN 658
EGYPT 550
ITALY 1,800
TOTAL EUROPE 53,095
SO. AF. 34
TOTAL LAT. AM. 13,527
MEX. 2,800
CUBA 600
TOTAL LAT. AM. 46,724
MEX. 14,900
CUBA 18,300
COLOM. 3,700
VENEZ. 400
PERU 1,000
BRAZIL 1,700
CHILE 6,800
COLOM. 2,800
VENEZ. 1,720
BRAZIL 190
PERU 1,500
CHILE 5,300
U.S.A. 513,000
MEX. 17,000
CUBA 9,200
BRAZIL 116,400
CHILE 24,200
URUG. 16,800
ARGEN. 65,000


GT. BR. 1,532,000
EIRE 22,600
TOTAL SCAND. 4,180,000
BELG. 52
DEN. 25
FRANCE 428,918
GER. 326,783
GREECE 24,300
HUNG. 6,100
ITALY 163,117
NETH. 204,800
POLAND 49,000
PORT. 20,700
SPAIN 96,391
SWITZ. 32,971
SOV. UNION 30,100
CHINA 8,300
PAKISTAN 6,000
JAPAN 74,400
INDIA 11,700
AFRICA 22,909
AUST. 49,000
NEW ZEA. 7,100
FROM CAN. TOTAL 71,360
JAPAN 60,300
INDIA 3,000
AUST. 4,500
JAPAN 18,200
KOREA 1,100
FORMOSA 1,200
FROM U.S. TOTAL 23,359
AUST. 1,500
WORLD PULP TRADE
MARKET PULP FLOW
1953
[In Tons of 2,000 lbs.]
PULP & PAPER



Planning For Pulp...



ABOVE: Aerial view of St. Regis Paper Co. mill at Tacoma, Wash.

Tacoma Sulphate Pulp enjoys a world-wide reputation among paper makers for its outstanding strength characteristics. Production—750,000 lbs. daily.

LEFT: Scene in a St. Regis stand of timber in the Northwest which supplies the Tacoma mill.

As custodian of over 2,000,000 acres of forests, from Maine to Washington and from Quebec to Florida, St. Regis recognizes the necessity to perpetuate this valuable source of pulpwood.

Natural reforestation, selective cutting, the planting of seedlings and a continuing program for fire and disease prevention assure that every time a tree is used for pulp, a new tree is there to replace it. Thus St. Regis plans for trees for tomorrow and contributes to the future of the paper industry throughout the world.

TACOMA
SUPER STANDARD
SULPHATE PULP
BLEACHED AND UNBLEACHED

ST. REGIS SALES CORPORATION

SALES SUBSIDIARY OF ST. REGIS PAPER COMPANY

KRAFT DIVISION

230 PARK AVENUE • NEW YORK 17, N. Y.

PULP & PAPER

Directory of Producers, Importers and Agents of WORLD MARKET WOODPULP

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World Producers of Market Woodpulp

Listings following company names and addresses give type of pulp and brand names. All grades are softwood unless otherwise specified.

UNITED STATES

American Wood Board Co.
Schuylerville, New York
Groundwood
Standard, unbleached

Bowaters Southern Paper Corp.
Mill at: Calhoun, Tenn.
Sales: The Bowater Paper Co., Inc.
250 Park Ave., New York 17, N.Y.
Sulfate semi-bleached

Brown Company
General Sales Office:
150 Causeway St., Boston 14, Mass.
Branch Offices:
500 Fifth Ave., New York 36, N.Y.
465 Congress St., Portland 4, Me.
110 S. Dearborn St., Chicago 3, Ill.
681 Market St., San Francisco, Calif.
(See Brown Corp. in Canadian section)
Mill at: Berlin, N.H.
Sulfite bleached
Softwood and hardwood
Dissolving and related grades
Special grades
Screenings
Sulfite—Sulfate
Brands:
Solka Alpha V; Solka Photographic; Solka Soft Alpha; Solka Dur Sylvan; Solka Dur Natus; Solka Special Dur Alba

Brunswick Pulp & Paper Co.
Mill at: Brunswick, Georgia
Agent: The Mead Sales Co., Inc.
Sulfate, bleached
Grade—Pine hardwood
Brand: Brunswick

Buckeye Cellulose Co.
Foley, Florida
Agent: Bulkley, Dunton Pulp Co., Inc.
Bleached Kraft

Chesapeake Corp. of Virginia
West Point, Virginia
Agents: Parsons & Whittemore, Inc.
Castle & Overton, Inc.
Cellulose Sales Co., Inc.
Woodpulp, Inc.
(Prime Quality Kraft)
Sulfate, unbleached
Standard grades
Brand: Chesapeake

Coosa River Newsprint Co.
Coosa Pines, Alabama
Agent: Bulkley, Dunton Pulp Co., Inc.
Sulfate, bleached

Container Corp. of America
Main Office:
38 S. Dearborn St., Chicago 3, Ill.
Mill at: Fernandina, Florida
Agent: Gottesman & Co., Inc.
Sulfate, unbleached
Special grades
Brand: Conus

Crown Zellerbach Corp.
Executive office:
343 Sansome St., San Francisco 19, Calif.
Mills at: Camas, Washington
Port Townsend, Washington
Sulfite, bleached, unbleached
Sulfate, bleached, unbleached

Dexter Sulphite Pulp & Paper Co.
Dexter, New York
Agent: Bulkley, Dunton Pulp Co., Inc.
Sulfite, bleached
Special grades
Sulfite, unbleached
Special grades
Screenings
Sulfite—Mitscherlich

East Texas Pulp and Paper Co.
Evadale, Texas
Sulphate, bleached
Softwood and Hardwood
Brand: Lone Star

Eastern Corporation
Executive office:
Bangor, Maine
Mills at:
Lincoln, Maine
South Brewer, Maine
Agent: Gottesman & Co., Inc.
Sulfite, bleached
Special grades
Standard grades
Standard grades—hardwood
Brand: Purocell

Gaylord Container Corp.
Executive office:
111 North Fourth St., St. Louis 2, Mo.
Mill at: Bogalousa, La.
Agent: Gottesman & Co., Inc.
Sulfate, bleached
Standard grades
Sulfate, unbleached
Standard grades
Special grades
Brands: Bogalousa; Black Kraft

Gilman Paper Co.
Main office:
630 Fifth Ave., New York 20, N.Y.
Mills at:
Gilman, Vermont
St. Marys, Georgia
Sulfate, unbleached
Standard grades
Standard unbleached
Sulfate, bleached
High brightness grades
Super standard grades
Standard bleached
Semi-bleached

Halifax Paper Co., Inc.
Main office: The Albemarle Paper Mfg. Co., Richmond, Va.
Mill at: Roanoke Rapids, N. C.
Sulfate, bleached
Partially bleached
Sulfate, unbleached
Standard grades
Standard grades—hardwood
Brand: Halifax

Hollingsworth & Whitney Co.
Main office:
60 Batterymarch St., Boston 2, Mass.
Mills at:
Madison, Maine (Groundwood)
Mobile, Alabama (Sulfate)
Winslow, Maine (Sulfite)
Groundwood
Special grades—bleached
Special grades—unbleached
Sulfate
Semi-bleached
Bleached
Sulfite
Unbleached
Semi-bleached
Bleached

International Paper Co.
Executive Office:
220 E. 42d St., New York 17, N.Y.
Mills at:
Natchez, Miss.
Spring Hill, La.
Agent: Gottesman & Co. Inc
(Paper grades)
Riordon Sales Corp. (Dissolving grades only)
Sulfate, bleached
Dissolving and paper grades
Sulfate, unbleached
Paper Grade
Brands: Supercell; Tenacell; Novocell

Ketchikan Pulp Co.
Ketchikan, Ward Cove, Alaska
Agent: Bulkley, Dunton Pulp Co., Inc.
Bleached Sulfite

Little Rapids Division
Charmin Paper Mills
De Pere, Wisconsin
Groundwood
Standard grades
Bleached and unbleached

Marathon Corp.
Rothschild, Wisconsin
Sulfite, bleached
Standard grades
Sulfite, unbleached
Standard grades

Screenings
Sulfite

The Mead Corp.
Mills at:
Bristol, Virginia
Kingsport, Tennessee
Agent: **The Mead Sales Co., Inc.**
Soda
Bleached
Unbleached
Brand: Mead

National Container Corp.
Executive office: New York, N. Y.
Mills at:
Jacksonville, Florida
Big Island, Virginia
Jaite, Ohio
Reading, Pennsylvania
Tomahawk, Wisconsin
Valdosta, Georgia
Sulfate, unbleached
Standard grades

North Carolina Pulp Co.
Mill at: Plymouth, N. C.
Branch office:
Box 710, Camden 1, N. J.
Sulfate, bleached
Standard grades
Partially bleached
Sulfate, unbleached
Standard grades

Oswego Falls Corp.
Fulton, New York
Groundwood
Standard unbleached, bleached

Oxford Paper Co.
Executive office:
230 Park Ave., New York 17, N.Y.
Mill at: Rumford, Maine
Agent: **Acer & Company**
Bulkley, Dunton Pulp Co.
The Mead Sales Co., Inc.
Sulfate, bleached
Standard grades—hardwood
Brand: Harbrite

Penobscot Chemical Fibre Co.
Executive office:
211 Congress St., Boston, Mass.
Mill at: Great Works, Maine
Sulfite, bleached
Standard grades
Soda
Bleached
Brand: Penobscot

Potlatch Forests, Inc.
Lewiston, Idaho
Agent: **Bulkley, Dunton Pulp Co., Inc.**
Bleached kraft

Puget Sound Pulp & Timber Co.
Bellingham, Washington
Agent: **Bulkley, Dunton Pulp Co.**
Sulfite, bleached

Rayonier Inc.
Executive & sales office: New York N. Y.
Mills at:
Fernandina, Florida
Hoquiam, Washington
Port Angeles, Washington
Shelton, Washington
Jesup, Georgia
Agent: **Gottesman & Co., Inc.**
Sulfite, bleached
Special grades
Standard grades

Riegel Carolina Corp.
Executive office: New York, N. Y.
Mill at:
Acme, North Carolina
Agents: **Bulkley, Dunton Pulp Co.**
Gottesman & Co., Inc.
Sulfate, bleached
Special grades
Standard grades
Standard grades—hardwood
Sulfate, unbleached
Standard grades
Brands: Super-Albacel; Albacel; Astracel

St. Marys Kraft Corp.
St. Marys, Georgia
Agent: **Bulkley, Dunton Pulp Co.**
Unbleached Kraft
Regular and Soft

St. Helens Pulp & Paper Co.
St. Helens, Oregon
Agent: **Bulkley, Dunton Pulp Co.**
Sulfate, unbleached
Special grades

St. Regis Paper Co.
Executive office:
230 Park Ave., New York 17, N.Y.
Mill at: Tacoma, Washington
Sole Agents: **St. Regis Sales Corp.**
Sulfite, bleached
Standard grades
Sulfate, unbleached
Standard grades
Brand: Tacoma

Scott Paper Co.
West Coast Division
Everett, Washington
Manager of Pulp Sales
R. M. Heath
Scott Paper Co.
Chester, Pa.
Sulfite, bleached
(Dissolving and related grades)
Standard grades
Screenings
Brand: Soundview

Southland Paper Mills, Inc.
Lufkin, Texas
Agent: **Perkins-Goodwin Co.**
Sulfate, unbleached
Standard grades

Spaulding Pulp and Paper Co.
Newberg, Oregon
Agent: **Perkins-Goodwin Co.**
Sulfite, unbleached
Standard grades

Tomahawk Pulp Co.
Tomahawk, Wisconsin
Branch office:
115 S. Superior St., Appleton, Wis.
Groundwood
Fine tissue grades
Toweling, and free board
Grades to specifications

West Virginia Pulp & Paper Co.
Executive office:
230 Park Ave., New York 17, N.Y.
Mills at: Mechanicville, New York
Williamsburg, Pennsylvania
Charleston, South Carolina
Agent: **Castle & Overton, Inc.**
Sulfate
Screenings

Weyerhaeuser Timber Co., Pulp Div.
Sales office:
230 Park Ave., New York 17, N.Y.
Branches:
Bank Bldg., Clinton Mass.
400 W. Madison St., Chicago 6, Ill.
681 Market St., San Francisco, Calif.
Mills at: Everett, Washington
Longview, Washington
Sulfite, bleached
Dissolving and related grades
Papermaking grades
Sulfate, bleached
Papermaking grades

CANADA

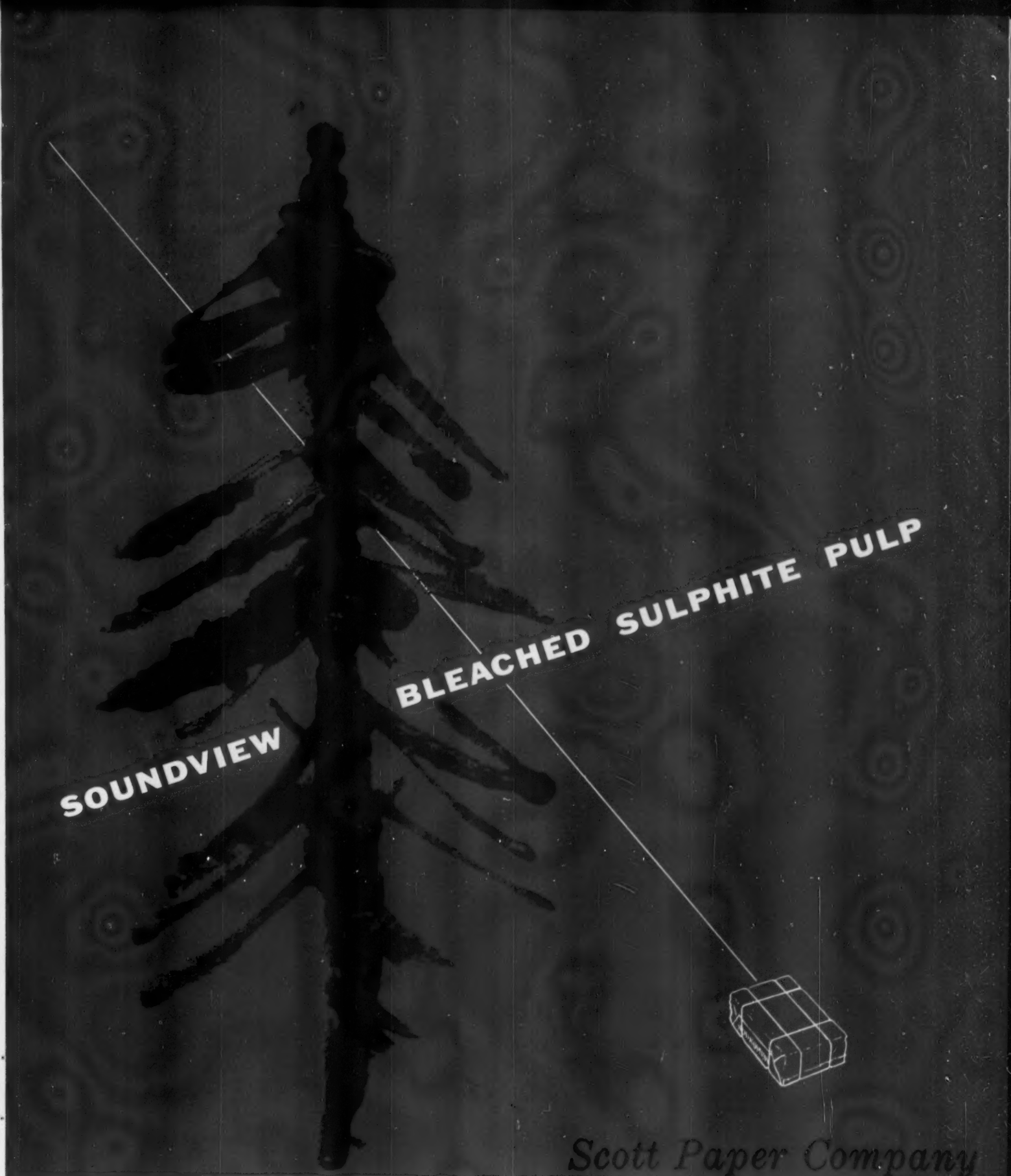
Abitibi Power & Paper Co., Ltd.
408 University Ave., Toronto 2, Ont.
Mill at: Sault Ste. Marie, Ont.
Smooth Rock Falls, Ont.
Port Arthur, Ont.
Agent: **The Mead Sales Co., Inc.**
Sulfite, bleached
Sulfite, unbleached
Screenings
Sulfite
Side Run News
Brand: Abitibi

Alaska Pine & Cellulose, Ltd.
1111 W. Georgia St., Vancouver 5, B. C.
Mills at: Port Alice, B.C.
Woodfibre, B.C.
Agent: **The Mead Sales Co., Inc.**
Bleached sulfite
Paper and dissolving grades
Brand: Alaska Pine & Cellulose

Alliance Paper Mills, Ltd.
407 McGill St., Montreal 1, Que.
Mill at: Merritton, Ont.
Agent: **Howard Smith Paper Mills, Ltd.** (Pulp Sales Dept.)
Sulfite, bleached
Special grades
Glassine
Tissue
Brand: Alliance

Anglo-Canadian Pulp & Paper Mills, Ltd.
10-16 Blvd. des Capucins, Quebec
Agent: **Northeastern Paper Products, Ltd.**
Sulfite, unbleached
Strong
Screenings
Sulfite and groundwood
Brand: Anglocan

Anglo-Newfoundland Development Co. Ltd.
Grand Falls, Newfoundland



Scott Paper Company



West Coast Division • *Everett, Washington*

Agent: Northeastern Paper Products Ltd.
Sulfite, strong, unbleached
Brand: ANDCo.

Bathurst Power & Paper Co., Ltd.
Sun Life Bldg., Montreal, Que.
Mill at: Bathurst, New Brunswick
Agents: Acer & Co., Inc.
Acer McLernon, Inc. (Montreal)
Sulfite, unbleached
Standard grades
Standard grades—hardwood
Brand: Bathurst

Bowater's Newfoundland Pulp & Paper Mills, Ltd.
Corner Brook, Newfoundland
Agents: Acer & Co., Inc.
Acer McLernon, Inc. (Montreal)
Sulfite, unbleached
Standard grades
News

John Breakey, Limited
Breakeyville, Que.
Agents: Pulp & Paper Trading Co. Woodpulp, Inc.
Groundwood

Manufacturers in Canada

of high quality Woodpulp

STORMONT grade Bleached Sulphite
SEAGULL grade Bleached Sodapulp
made at Cornwall, Ont.

CRABTREE grade Groundwood
made at Crabtree, Que.

ALLIANCE Glassine grade Bleached Sulphite
made at Merritton, Ont.

DONNACONA grade Unbleached Sulphite
made at Donnacona, Que.

TUFTARE grade Bleached Kraft
WINDSOR grade Unbleached Kraft
made at Windsor Mills, Que.

Sold and distributed by

Pulp Sales Department
Howard Smith Paper Mills Limited

407 McGill Street **Montreal, Que.**

Brown Corporation
Dominion Sq. Bldg., Montreal, Que.
United States offices:
Brown Co., 150 Causeway St., Boston 14, Mass.
500 Fifth Ave., New York 36, N.Y.
465 Congress St., Portland 4, Me.
110 S. Dearborn St., Chicago 3, Ill.
Mill at La Tuque, Que.
(See Brown Co. in U. S. Section)
Sulfate, bleached
Softwood and hardwood
Special grades
Super grades
Sulfate, unbleached
Softwood and hardwood
Special grades
Standard grades
Brands: Solka No. 30, Solka No. 20, Solka 10A, Solka Duracel, Cellate, Super Strong Cellate, Durakraft, Special Washed Sulfate, Regular Unbleached Sulfate

Canada Paper Co.
407 McGill St., Montreal 1, Que.
Mill at: Windsor Mills, Que.
Agent: Howard Smith Paper Mills, Ltd. (Pulp Sales Dept.)
Sulfate, bleached
Standard grades
Sulfate, unbleached
Special Condenser
Brands: Tuftare; Windsor

Canadian Forest Products Ltd.
Howe Sound Pulp Division
Executive Office: 999 W. Pender St., Vancouver 1, B.C.
Mill at: Port Mellon, B.C.
Agent: Perkins-Goodwin Co.
Semi-bleached and unbleached kraft

Canadian International Paper Co.
Sun Life Bldg., Montreal 2, Que.
Mills at: Calumet, Que.
Hawkesbury, Ont.
Gatineau, Que.
Temiskaming, Que.
Trois Rivieres, Que.
Sold by: Riordon Sales Corp., Ltd.
Montreal 2, Que.
Sulfite, bleached
Dissolving and paper grades
Sulfite, unbleached
Paper grade
Screenings
Sulfite
Brands: Novocell; Tenacell; Filmcell; Acetacell; Plasticell

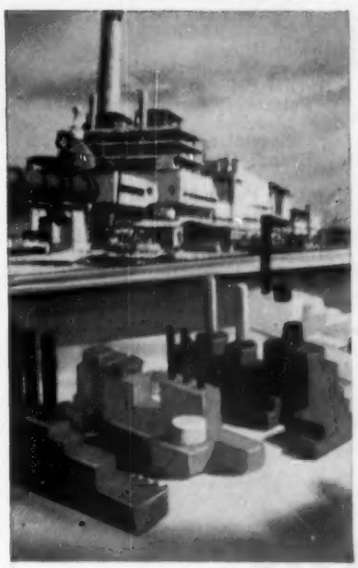
Consolidated Paper Corp., Ltd.
Sales office:
Consolidated Paper Sales, Ltd.
Sun Life Bldg., Montreal, Que.
Mills at:
Port Alfred, Que.
Grand Mere, Que.
Cap de la Madeleine, Que.
Shawinigan Falls, Que.
Three Rivers, Que.
Agent: Castle & Overton, Inc.
Sulfite, unbleached
Standard grades
Sulfate, unbleached
Special grades
Standard grades
Brands: Laurentide; Port Alfred; Wayagamack

Donnacona Paper Co., Ltd.
25 St. Louis St., Quebec, Que.
Mill at: Donnacona, Que.
Agent: Pulp Sales Dept.



An Industry Leader answers some questions about "bigness"

Another big plant and still greater production capacity for Rayonier



RAYONIER'S GROWTH: Since mid-1930's Rayonier's capacity has steadily increased to over one billion lbs. annually. Beginning with 3 efficient plants in the Northwest, Rayonier added a 4th in Florida, while expanding and improving original facilities to keep pace with requirements.

The 5th large mill, recently completed in Jesup, Georgia, is a high point in current expansion. Built to produce superior new type cellulose, it has an initial annual capacity of 174 million lbs. which can be doubled as world requirements call for additional facilities.

INDUSTRY PROFITS from Rayonier's growth. Customers are assured a stable source of supply due to the company's extensive control of its prime material . . . a policy of maintaining capacity equal to maximum needs, plus stabilized price policy. These advantages few smaller firms offer.

Rayonier can afford $1 million a year on research projects which anticipate future technical requirements. Yet, Rayonier doesn't underrate its competition. It lauds their success, which means growth, greater benefits to industry and consumer.



RAYONIER *cellulose chemistry*
INCORPORATED

World Market Woodpulp Directory

Howard Smith Paper Mills Ltd.
Sulfite
Standard unbleached
Brand: Donnacona

Donohue Brothers Ltd.
Clermont, Que.
Groundwood
Standard unbleached
Brand: Murray Bay
(All sold under long term contracts)

Dryden Paper Co., Ltd.
Dryden, Ontario
Agents: **Acer & Co., Inc.**
Acer McLernon, Inc. (Montreal)
Sulfate, unbleached
Standard grades
Brand: Dryden

Fraser Companies, Ltd.
Sales office:
1010 St. Catherine St. W.
Montreal 2, Que.
Mills at: Edmundston, N. B.
Newcastle, N. B.
General offices: Edmundston, N. B.
Sulfite, bleached
Standard grades
Sulfite, unbleached
Standard grades
Groundwood
Standard unbleached
Sulfate, bleached
Standard grades
Sulfate, unbleached
Standard grades

Gair Co., Canada Ltd.
372 Bay St., Toronto 1, Ont.
Mills at:
Campbellford, Ont.
Frankford, Ontario
Groundwood
Standard unbleached
Brand: Gair

Gaspesia Sulphite Co., Ltd.
Main Office: P.O. Box 1487, Quebec, Que.
Mill at: Chandler, Que.
Agents:
Canada: **Moore, Hill, Kenny & Smith**
U. S.: **Montmorency Paper Co., Inc.**
Overseas: **Northeastern Paper Products, Ltd.**
Sulfite, bleached
Sulfite, unbleached, strong unbleached, easy bleaching
Screenings, sulfite
Brand: Gaspesia

Great Lakes Paper Co., Ltd.
P.O. Box 430, Fort William, Ont.
Agent: **Great Lakes Canadian, Inc.**
332 South Michigan Ave., Chicago, Ill.
Sulfite, unbleached
Standard grades
Sulfite, unbleached glassine
Screenings, sulfite
Brand: Great Lakes

Gulf Pulp & Paper Co.
65 St. Anne St., Quebec, Que.
Mill at: Clarke City, Que.
Agent: **Price & Pierce, Ltd.**
Groundwood—pressed wet
Special unbleached
Standard unbleached
Screenings
Brand: Gulf

Halifax Power & Pulp Co., Ltd.
Sheet Harbour, Nova Scotia
Groundwood
Standard unbleached

Howard Smith Paper Mills Ltd.
407 McGill St., Montreal 1, Que.
Mills at: Cornwall, Ont.
Crabtree Mills, Que.
Agent: **Howard Smith Paper Mills Ltd. (Pulp Sales Dept.)**
Sulfite, bleached
Standard grades
Soda
Bleached
Groundwood
Standard unbleached
Brands: Crabtree; Seagull; Stormont

Irving Pulp & Paper Ltd.
P.O. Box 280, Lancaster, N. B.
Agents: **Bulkley, Dunton Pulp Co.**
Parsons & Whittemore, Inc.
Sulfite, bleached
Prime grades
Brand: Saint John

KVP Co., Ltd.
Espanola, Ontario
Agent: **Bulkley, Dunton Pulp Co., Inc.**
Sulfate, bleached

Lake Megantic Pulp Co.
Lake Megantic, Quebec
Agent: **Woodpulp, Inc.**
Groundwood—unbleached (moist)
Board and tissue
Brand: Lake Megantic

Longlac Pulp & Paper Co. Ltd. (Kimberly-Clark Corp.)
Terrace Bay, Ontario
Agent: **Bulkley, Dunton Pulp Co., Inc.**
Sulfate, bleached

Lotbiniere Pulp & Paper Co., Ltd.
Danville, Que.
Mill at: Nicolet Falls, Que.
Agent: **Parsons & Whittemore, Inc.**
Groundwood—unbleached (moist)
Standard grades—tissue and board
Brand: Lotbiniere

James Maclaren Co., Ltd.
Buckingham, Que.
Agent: **Gottesman & Co., Inc.**
Sulfite, unbleached
Standard grades
Groundwood

MacMillan & Bloedel, Ltd.
837 W. Hastings St., Vancouver, B.C.
Mill at: Port Alberni, B.C.
Agent: **The Mead Sales Co., Inc.**
Sulfate, unbleached
Grades: Standard—strong; "A"—bleachable
Brand: Bloedel
Mill at Nanaimo, B.C.
Agent: **Price & Pierce, Ltd.**
Sulfate—bleached and semi-bleached
Special and standard grades
Brand: Harmac

Marathon Paper Mills of Canada, Ltd.
Sales office:
Marathon Corp., Rothschild, Wis.
Mill at: Marathon, Ontario
Bleached sulfate
Bleached hardwood sulfate

WOOD PULP
ALL GRADES
ACER McLERNON
INCORPORATED
CANADA CEMENT BUILDING MONTREAL



WOODPULP—on the move!



Weyerhaeuser woodpulp courses steadily along the economic by-ways of the nation, finding its way into hundreds of diversified end-products that improve our daily living. Vast, varied industries depend upon an uninterrupted supply of this essential raw material which is such a vital part of the American economy.

Less than a quarter of a century ago, a large portion of a tree that could not be economically converted into useful products was burned or allowed to rot. Modern concepts of full wood utilization and sane forestry management were not then economically feasible.

Today, Weyerhaeuser Timber Company processes convert the tree's raw materials into useful and marketable products. The best possible value and utility are obtained from each tree harvested.

Diversification in processing is the key to complete wood utilization. New products from woodpulp mean expanding markets and steady payrolls.

Good forestry practices plus laboratory research assure industry of a long-term, never-ending supply of Weyerhaeuser woodpulp.

PULP DIVISION WEYERHAEUSER

World Market Woodpulp Directory

Mersey Paper Co., Ltd.
Liverpool, Nova Scotia
Agent: **Price & Pierce, Ltd.**
Sulfite
Standard unbleached
Pulping—Side Run News
Brand: Mersey

Minas Basin Pulp & Power Co. Ltd.
Hantsport, Nova Scotia
Agent: **Price & Pierce, Ltd.**
Groundwood
Special unbleached
Standard unbleached
Brand: Minas Basin

Mohawk Corp., Ltd.
P.O. Box 408, Riviere du Loup, Que.
Mill at: Riviere du Loup
Agent: **Gottesman & Co., Inc.**
Groundwood
Standard unbleached

Nairn Falls Pulp Co., Ltd.
Clermont, Que.
Groundwood bleached
Brand: Nairn Falls
(All sold under long term contracts)

Ontario Paper Co., Ltd.
Thorold, Ontario
Agents: **Bulkley, Dunton Pulp Co., Inc.**
J. J. Nolan
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Woodpulp, Inc.
Sulfite, unbleached
Special grades—glassine
Standard grades
Brand: Ontario

Powell River Co., Ltd.
Standard Bldg., Vancouver, B.C.
Sales office:
Powell River Sales Co., Ltd.
Standard Bank Bldg., Vancouver, B.C.
U. S. Sales office:
Powell River Sales Corp.
400 Madison Ave., New York, N.Y.
Mill at: Powell River, B.C.
Sulfite, unbleached
Standard grades
Brand: Powell River

Price Bros. & Co., Ltd.
Quebec, Que.
Agent: **Price & Pierce, Ltd.**
Sulfite
Standard bleached
Standard unbleached
Brand: Price Bros.

Provincial Paper Ltd.
388 University Ave., Toronto, Ont.
Mill at: Port Arthur, Ontario
Agent: **The Mead Sales Co., Inc.**
Groundwood
Standard unbleached
Screenings
Sulfite
Brand: Provincial

Quebec North Shore Paper Co.
Head office:
680 Sherbrooke St. W., Montreal, Que.
Sales office:
Ontario Paper Co., Ltd., Thorold, Ontario
Mill at: Baie Comeau, Que.
Agents: **Bulkley, Dunton Pulp Co., Inc., Perkins-Goodwin Co.**
Sulfite, unbleached
Special grades
Standard grades
Groundwood
Standard unbleached

Restigouche Co. Ltd.
c/o Fraser Companies, Ltd.
1010 St. Catherine St. W., Montreal 2, Que.
Mill at: Atholville, N. B.
Sulfite, bleached
Dissolving and related grades
Standard grades
Screenings
Sulfite
Brands: Restigouche; Restophane; Resticose

Richmond Pulp & Paper Co. of Canada, Ltd.
Bromptonville, Que.
Agent: **Price & Pierce, Ltd.**
Groundwood
Standard unbleached
Brand: Bromptonville

St. George Pulp & Paper Co., Ltd.
Mill at: St. George, N. B.
P.O. Box 847, St. John, N. B.
Agents: **The Mead Sales Co., Inc.**
Bulkley, Dunton Pulp Co.
Pulp & Paper Trading Co.
Groundwood
Bleached
Unbleached
Brand: Fibrewhite

St. Lawrence Corp., Ltd.
Sales office:
St. Lawrence Sales Co., Ltd.
Sun Life Bldg., Montreal, Que.
Mills at:
Dolbeau, Que.
East Angus, Que.
Nipigon, Ont.
Red Rock, Ont.
Three Rivers, Que.
Agent: **Gottesman & Co., Inc.**
Sulfite, unbleached
Standard grades
Bleachable grades
Sulfate, unbleached
Standard grades
Groundwood
Standard unbleached

St. Raymond Paper, Ltd.
1510 Drummond St., Montreal 25, Que.
Mills at:
Desbiens, Que.
St. Raymond, Que.
Agent: **St. Raymond Sales Ltd.**
1510 Drummond St., Montreal, Que.
Sulfite, unbleached
Special grades
Standard grades
Groundwood
Standard unbleached
Screenings
Sulfite
Brand: St. Raymond

Soucy, Inc., F. F.
Chemin du Lac, Co. Temiscouata, Que.
Agent: **Bulkley, Dunton Pulp Co.**
Groundwood
Standard unbleached
Brand: Soucy, Snow Flake

Thorold Pulp Co., Ltd.
Front Street
Thorold, Ontario
Groundwood
Standard unbleached

FINLAND

Aanekoski O/Y
Aanekoski
Representative: **Pulp Sales Corp.**
Sulfite, unbleached
Special grades—softwood
Brand: Aanekoski (Blue) Strong; also second quality

Ahlstrom, A. O/Y
Warkaus
Representative: **Pulp Sales Corp.**
Sulfite, unbleached
Special grades
Brands: Ahlstrom (Blue) Strong; Ahlstrom BL Bleachable; Ahlstrom EB Easy Bleaching

Eklof, Aug., A/B
Borga
Representative: **Pulp Sales Corp.**
Sulfite, unbleached
Special grades
Standard grades
Brands: Eklof (Green) Extra Strong; Eklof (Blue) Strong; Eklof BL Bleachable; also semi-prime, second and third qualities, and screenings

Elving, Anton (Siuro)
Siuro
Representative: **Pulp Sales Corp.**
Groundwood (In Thin Sheets)
Special unbleached—hardwood
Standard unbleached
Brand: Siuro

Enqvist, J. W. O/Y, (Sphinx, Killinkoski)
Killinkoski
Lielahti
Representative: **Pulp Sales Corp.**
Groundwood (In thin sheets)
Standard unbleached
Brand: Killinkoski
Sulfite, bleached
Special grades
Standard grades
Brands: Sphinx (Red) for Rayon; Sphinx (Red) Extra Soft; Sphinx (Black) Soft; Sphinx (Blue) Strong; also semi-prime, second and third qualities and screenings.

Enso-Gutzeit O Y (Tornator, Gutzeit)
Kaukopaa
Kotka
Tainionkoski
Representative: **Pulp Sales Corp.**
Sulfate, unbleached
Special grades
Standard grades
Brands: Tornator (Green) (Seal) Extra Strong; Tornator (Seal) Strong; Tornator L&S (Seal) Light & Strong; Gutzeit (Green) Extra Strong; Gutzeit

PRICE & PIERCE
LIMITED

WOOD PULP AGENTS

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27 CLEMENTS LANE E.C. 4

NEW YORK 17
60 EAST 42nd STREET

MONTREAL
1058 SUN LIFE BUILDING



PUGET PULP—*the whitest, cleanest, bleached sulphite pulp* that we can make is produced *particularly for the market.* To assure converting mills of top quality, Puget management is always testing new processes, always alert to improved methods, always ready to install new designs in equipment. *Gear your operations to* ***PUGET PULP.***



PUGET SOUND

PULP AND TIMBER COMPANY

BELLINGHAM · WASHINGTON

(Blue) Strong; also second qualities
Sulfite, unbleached
Special grades
Brands: Tornator (Glassine); Tornator (Green) Extra Strong; Tornator (Blue) Strong; Tornator BL Bleachable; Tornator EB Easy Bleaching

Haarlan Selluloosayhtio
Lievestuore
Representative: **Pulp Sales Corp.**
Sulfite, bleached
Special grades
Standard grades — softwood, hardwood
Brands: Haarla (Green) Extra Strong; Haarla (Blue) Strong; Haarla (Black) Soft; Haarla (Green) Glassine; Haarla Aspen (hardwood); Haarla Birch (hardwood)

Jakobstads Cellulosa A/B
Jakobstad
Representative: **Pulp Sales Corp.**
Sulfite, unbleached
Special grades
Standard grades
Brands: Jakobstad (Green) Extra Strong; Jakobstad (Blue) Strong

Joutseno-Pulp O/Y
Joutseno
Representative: **Pulp Sales Corp.**
Sulfate, unbleached
Special grades
Standard grades
Brands: JsssP (Green) Extra Strong; JsssP (Blue) Strong; also second qualities

Kajaani O/Y
Kajaani
Representative: **Pulp Sales Corp.**
Sulfite, unbleached
Special grades
Brands: Kajaani BL Bleachable; Kajaani EB Easy Bleaching; also semi-prime qualities and dry screenings

Kaukas Fabrik, A/B
Kaukas
Representative: **Pulp Sales Corp.**
Sulfite, bleached
Special grades
Standard grades
Brands: KF One Crown; Two Crown; Three Crown; Four Crown for viscose; KF One A; Two A for Acetate; KF (Blue) Strong; KF (Black) Soft; KF (Red) Extra Soft; also second and third qualities

Kemi, O/Y
Kemi
Representative: **Pulp Sales Corp.**
Sulfite unbleached
Special grades
Standard grades
Brands: Kemi (Green) Extra Strong; Kemi (Blue) Strong; Kemi BL Bleachable; also semi-prime, second qualities and dry screenings
Sulfate, unbleached
Special grades
Standard grades
Brands: Kemi (Green) Extra Strong; Kemi (Blue) Strong; Kemi W; Kemi L&S Light & Strong; Kemi Con Condenser; also second qualities

Kymmene, A/B
Kuusankoski
Representative: **Pulp Sales Corp.**
Sulfite, bleached
Special grades
Standard grades
Brands: Kuusankoski (Green) Extra Strong Bond; Kuusankoski (Blue) Strong

Lohja-Kotka, O/Y
Lohja
Representative: **Pulp Sales Corp.**
Sulfate, unbleached
Special grades
Brand: Lohja (Blue) Strong

Nokia O/Y
Nokia
Representative: **Pulp Sales Corp.**
Sulfite, unbleached
Special grades
Standard grades
Brands: Nokia (Green) Extra Strong; Nokia (Blue) Strong; Nokia BL Bleachable

Oulu O/Y
Oulu
Representative: **Pulp Sales Corp.**
Sulfate, unbleached
Special grades
Standard grades
Brands: Oulu (Green) Extra Strong; Oulu (Blue) Strong; Oulu L&S Light and Strong; also second qualities
Sulfate, semi-bleached
Brands: Oulu Polaris 55, 65, 70

Rauma-Repola O/Y
Rauma
Representative: **Pulp Sales Corp.**
Sulfite, bleached (new process)
Special grades
Brands: Rauma R, RR, RRR, for Rayon; Rauma (Black) Soft; Rauma (Blue) Strong; also semi-prime and second qualities

Rosenlew, W. and Co., A/B
Bjorneborg
Representative: **Pulp Sales Corp.**
Sulfite, bleached
Special grades
Standard grades
Brands: Rosenlew VR, VD, JS, VVE, VV, Alpha; Rosenlew R for Rayon, F for photo; Rosenlew (Red) Extra Soft; Rosenlew (Black) Soft; Rosenlew (Blue) Strong; also semi-prime qualities

Serlachius, G. A., O/Y
Manntta
Representative: **Pulp Sales Corp.**
Sulfite, bleached
Special grades
Standard grades
Brands: G.S. (AL) Alpha; G.S. (Red) Extra Soft; G.S. (Black) Soft; G.S. (Blue) Strong; G.S. (Green) Extra Strong; G.S. (Green) G Extra Strong Glassine
Sulfite, unbleached
Special grades
Standard grades
Brands: G.A.S. (Green) Extra Strong; G.A.S. (Blue) Strong; G.A.S. BL Bleachable

Stockfors, A/B
Lovisa
Representative: **Pulp Sales Corp**
Groundwood (in thin sheets)
Standard unbleached
Brand: Stockfors

Sunila O/Y
Sunila
Representative: **Pulp Sales Corp**
Sulfate, unbleached
Special grades
Standard grades
Brands: Sunila (Green) Extra Strong; Sunila (Blue) Strong; Sunila 400; Sunila L&S Light and Strong
Sulfate, semi-bleached
Brand: Sunila (Semi-T)

Svarta Bruk, O/Y, A/B
Svarta
Representative: **Pulp Sales Corp**
Groundwood (in thin sheets)
Standard unbleached
Brand: Svarta

Toppila, O/Y
Oulu-Uleaborg
Representative: **Pulp Sales Corp**
Sulfite, unbleached
Standard grades — softwood, wet pulp
Brand: Toppila (Blue) Strong; also second and third qualities

Veitsiluoto O/Y (V.L.)
Veitsiluoto
Representative: **Pulp Sales Corp**
Sulfite, unbleached
Standard grades
Brands: VL (Green) Extra Strong; VL (Blue) Strong; also semi-prime, second and third qualities, and dry screenings
Semi-chemical pulp
Special grades—wet pulp
Brands: VL (Blue) SA; VL (Black) SA

Yhtyneet Paperitehtaat O/Y
Jamsankoski and Walkiakoski
Representative: **Pulp Sales Corp**
Sulfite, bleached
Standard grades — softwood, hardwood
Brands: Ilves (Blue) Strong; Ilves (Black) Soft; Ilves Aspen (hardwood)
Sulfite, unbleached
Special grades
Standard grades
Brands: Walkiakoski (Blue) Strong; Walkiakoski BL Bleachable

NORWAY

Borregaard, Aktieselskapet
Sarpsborg
Agent: **The Borregaard Co., Inc.**
Sulfite, bleached
Dissolving and related grades
Special grades

Standard grades
Brands: V.S.; Super V.S.; Super A-1; A-1

Greaker Cellulosefabrik A/S
Greaker
Agent: **Price & Pierce, Ltd.**
Sulfite, bleached
Special grades
Standard grades
Brand: Greaker Sunshine

Hurum Fabriker, Aktieselskabet
Oslo
Agent: **Castle & Overton, Inc.**
Sulfate, bleached
Sulfate, unbleached

Katfos Fabriker, Aktieselskabet
Geithus
Agent: **Castle & Overton, Inc.**
Sulfite, unbleached

Krogstad Cellulosefabrik Aktieselskabet
Krogstad, pr. Mjondalen
Mjondalen
Agent: **Castle & Overton, Inc.**
Sulfite, bleached
Standard grades

Mjondalen Cellulosefabrik Aktieselskabet
Mjondalen
P. O.: Drammen
Agent: **Perkins-Goodwin Co.**
Sulfite, bleached
Standard grades
Brand: Mjondalen BA

Moss Sulphate and Paper Mills
Moss
Owners: M. Peterson & Son, A/S
Agent: **Parsons & Whittemore, Inc.**
Sulfate, unbleached
Standard grades
Brand: Moss

Tofte Cellulosefabrik Aktieselskabet
Oslo
Agent: **Castle & Overton, Inc.**
Sulfite, bleached
Special grades
Standard grades

Toten Cellulosefabrik Aktieselskabet
Nygaard Station
Gjovikbanen
Agent: **Castle & Overton, Inc.**
Sulfite, bleached
Standard grades
Brands: Toten TTT Prime Bleached

Vestfos Cellulosefabrik Aktieselskabet
Vestfossen Railway Station
Vestfossen
Agent: **Castle & Overton, Inc.**
Sulfite, bleached
Special grades
Standard grades

Viul Tresliperi, A/S
Viul Station
Honefoss
Agent: **Castle & Overton, Inc.**
Groundwood
Dry and Wet

EUROPEAN CONTINENT

Kellner-Partington Paper Pulp Co. Ltd
Hallein bei Salzburg, Austria
Mills at: Hallein & Villach
Agent: **The Borregaard Co., Inc.**
Sulfite, bleached
Dissolving and related grades
Special grades
Brands: Sp.C.; Super Bl.; Super BIDD

L'Alfa S.A.
Paris, France
Agent: **Parsons & Whittemore, Inc.**
Bleached Esparto

Zellstofffabrik Waldhof
Leberberg 9, Wiesbaden 16, Germany
Agent: **Castle & Overton, Inc.**
Bleached sulfite

N. V. Stroostofffabriek "Phoenix"
Veendam, Holland
Agent: **Parsons & Whittemore, Inc.**
Bleached straw pulp

Fabrik Celuloza Prijedor
Sarajevo, Yugoslavia
Agent: **Gottesman & Co., Inc.**
Sulfite, unbleached
Standard grades

SWEDEN

Bengtsfors Sulfitaktiebolag
Bengtsfors
Agent: **Parsons & Whittemore, Inc.**
Sulfite, bleached
Standard grades
Brands: Bengtsfors Prime Bl.; Dissolving and related grades
Brands: Corona Super I; Corona Super II; Corona USA

Bergvik och Ala Aktiebolag
Soderhamn
Agent: **Elof Hansson, Inc.**
Sulfite, unbleached (Mitscherlich)
Standard grades
Sulfate, unbleached
Standard grades
Brands: Goat S; Circle G; Goat Kraft; Star; J

Billeruds Aktiebolag
Saeffle
Agent: **Elof Hansson, Inc.**
Sulfite, bleached
Dissolving and related grades
Special grades
Standard grades
Brands: Billerud S; SS; SSS; VL; Billerud Castle

Bure Aktiebolag
Burea
Agent: **Cellulose Sales Co., Inc.**
Groundwood
Dry
Brand: Bure

Dynas Aktiebolag
Waija
Agents: **Gottesman & Co., Inc.**
Perkins-Goodwin Co.
Sulfate, unbleached
Special grades
Standard grades
Brands: Dynas; Dynas Chlorine No. 5

Eds Cellulosafabriks Aktiebolag
Eds Bruk
Agent: **Elof Hansson, Inc.**
Sulfate, unbleached
Special grades
Brands: Eds Two Stars Soft A; Light & Strong Kraft

Edsvalla Bruk, Aktiebolaget
Edsvalla
Agent: **The Borregaard Co., Inc.**
Sulfite, bleached
Dissolving and related grades
Special grades
Standard grades
Brands: Edsvalla V.S.; Edsvalla Super; Edsvalla S.E.B.

Essviks Aktiebolag
Sundsvall
Agent: **Cellulose Sales Co., Inc.**
Sulfite, bleached
Brands: Essvik "Special" Tissue Quality; Essvik "Three Star" Prime Quality; "Pulpcose" Dissolving grades

Forshaga Sulfit Aktiebolag
Forshaga
Agent: **The Borregaard Co., Inc.**
Sulfite, bleached
Dissolving and related grades
Special grades
Standard grades
Brands: Forshaga V.S.; Forshaga Super; Forshaga

Forss Aktiebolag
Kopmanholmen
Agent: **Price & Pierce, Ltd.**
Sulfate, bleached
Special grades
Standard grades
Sulfate, unbleached
Special grades
Brands: Forss Star; Forss OK

Forsse Woodpulp Mill
Oesterforse
Agent: **Nordicus Inc.**
Groundwood
Special unbleached dry

Gota Sulfitaktiebolaget
Gota
Agent: **Perkins-Goodwin Co.**
Sulfite, unbleached
Standard grades
Glassine grades

Hellefors Bruks Aktiebolag
Hellefors
Agents: **Castle & Overton, Inc.**
Elof Hansson, Inc. (sulfite grades only)
Sulfite, unbleached
Special grades
Standard grades
Sulfate, unbleached
Standard grades
Brands: HB; EB; HB Strong; HB Diamond

Hissmofors Aktiebolag
Krokom
Agent: **Bulkley, Dunton Pulp Co., Inc.**
Sulfite, unbleached
Standard grades
Brand: Elkhead

Hogfors Trasliperi, A/B
Haggenas



It's always important that annual reports make a good *visual* impression on stockholders. The ones you see here did—because they were produced on fine papers made by S. D. Warren Company with pulps engineered by Brown Company.

Specialty papers made with Brown Company Pulps provide the finest, clearest, most faithful reproduction possible—handsomely printed and illustrated annual reports, catalogs, brochures, all kinds of publications that your company can be proud of.

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CONDUIT • ONCO INSOLES • CHEMICALS

Agent: **Gottesman & Co., Inc.**
Groundwood
Special unbleached
Standard unbleached

Holmsunds Aktiebolag
Holmsund
Agent: **Cellulose Sales Co., Inc.**
Sulfate, unbleached
Brands: Obbola "30" Prime Light & Strong Bleachable; Obbola "50", "60" and "70" Prime Strong Qualities; Obbola "K" Refined Screenings

Hylte Bruks Aktiebolag
Hyltebruk
Agent: **Pagel, Horton & Co., Inc.**
Sulfite, unbleached
Special grades
Standard grades
Brands: Hylte Bruk H.1 Prime unbleached Sulfite; Hylte Bruk H.1.B.; Hylte Bruk H.2; Hylte Bruk H.3

Iggesunds Bruk, Aktiebolaget
Iggesund
Agents: **Bulkley, Dunton Pulp Co., Inc.**
Gottesman & Co., Inc.
Sulfite, bleached
Standard grades
Sulfate, bleached
Special grades
Standard grades
Sulfate, unbleached
Special grades
Standard grades
Groundwood
Special unbleached
Standard unbleached
Brands: Golden Anchor, Special, White Anchor

Kopparfors Aktiebolag
Ockelbo
Agent: **Perkins-Goodwin Co.**
Sulfate, bleached
Special grades
Super grades
Standard grades
Sulfate, unbleached
Special
Brands: Norrland One Star; KHB 90; Norrland Three Star; KHB Condenser

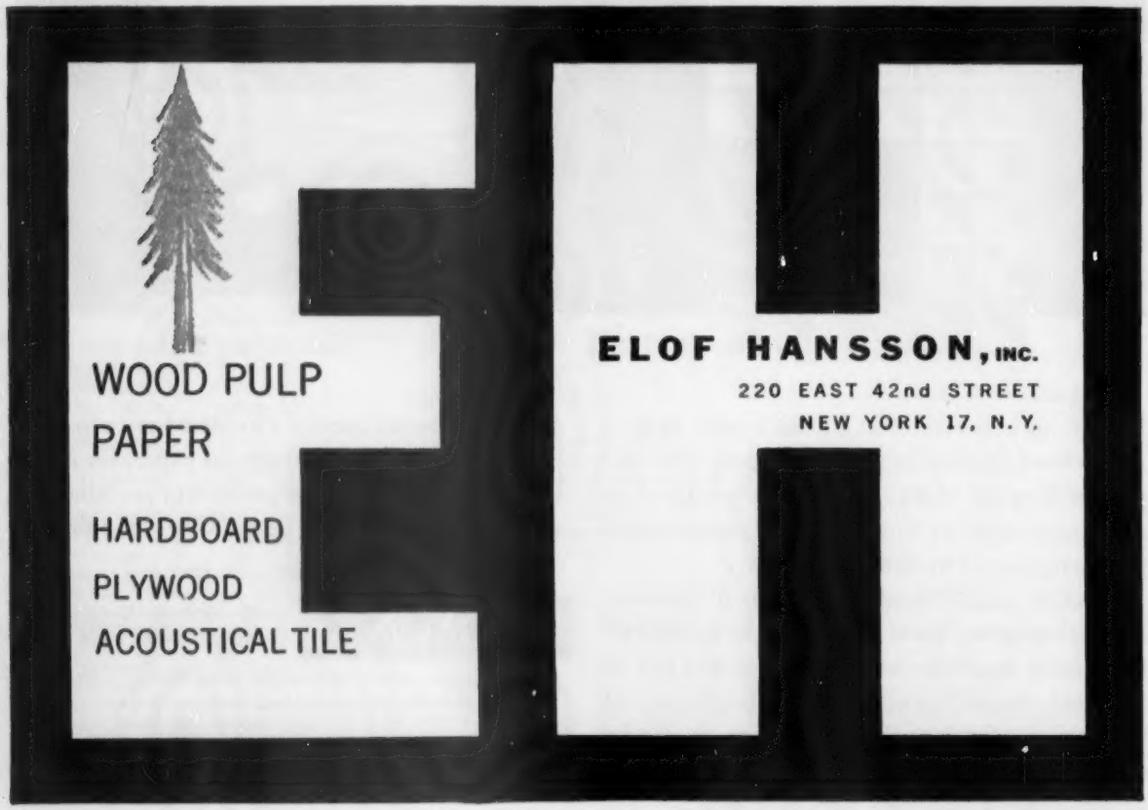
Korsnas Aktiebolag
Gavle 2
Agents: **Pagel, Horton & Co., Inc.**
Sulfite, bleached
Dissolving and related grades
Special grades
Super grades
Standard grades
Sulfate, bleached
Super grade
Semi-bleached
Brands: Roburwite Extra Prime Strong Bl. Mitscherlich Sulphite; Korsnas Super Tissue Prime Bl. Sulphite; Rayon Pulp-Korsnas Silk; Vigorwite Extra Prime Bl. Kraft; Manila Prime Semi-bleached Kraft.

Kramfors Aktiebolag
Kramfors
Agent: **Cellulose Sales Co., Inc.**
Sulfite, unbleached (Mitscherlich)
Kramfors "Puritan" Prime Glassine quality (Shipped either 30 to 50% moist or air dry); Kramfors "AA" Prime Quality; Kramfors "B" Second Quality; Kramfors "A" Half Prime; Kramfors "K" refined Screenings
Sulfate, unbleached
Brands: Nensjo "45" Bleachable; Nensjo "60" Strong; Nensjo "K" Refined Screenings
Groundwood, Moist
Byske Groundwood Mill
Ulvvik Groundwood Mill

Mackmyra Sulfit Aktiebolag
Mackmyra
Agent: **Bulkley, Dunton Pulp Co., Inc.**
Sulfite, unbleached
Special grades
Brands: MS; M

Marma Langrors A/B
Lottefors
Agent: **Price & Pierce, Ltd.**
Groundwood
Special unbleached
Brand: Lottefors L

Marma Langrors A/B
Soderhamn
Agent: **Price & Pierce, Ltd.**
Sulfate, unbleached
Special grades
Standard grades
Brand: Marma LJ Kraft; Marma LJ Kraft '50' Insulating



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Vallvik
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Sulfite, unbleached
Special grades
Standard grades
Screenings
Brands: LJ Two Crown Extra, LJ One Crown

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Main Office: Ornskoldsvik
Sales Office: Strandvagen 1, Stockholm
Mills at: Domsjo, Hornefors and Husum
Agent: **Pagel, Horton & Co., Inc.**
Sulfite, bleached
Dissolving and related grades
Special grades
Super grades—Softwood, hardwood
Standard grades — softwood, hardwood
Sulfate, bleached
Super grades—softwood, hardwood
Brands: Husum Extra White Prime Bl. Kraft; Husum White Birch Prime Bl. Sulphate; White Horse Strong Prime Bleached Sulphite; White Horse Greaseproof Prime Bleached Sulphite; White Horse Soft Prime Bl. Sulphite; Silverleaf Birch Prime Bleached Sulphite; White Aspen Prime Bleached Sulphite; White Aspen Special Prime Bleached Sulphite; Modocell; Modosilk; Modosilk Extra; Modosilk Super; Modocord; Modoceta; Modofoto; Modoplast; Modolint.

Munkedals Aktiebolag
Munkedal
Agent: **Elof Hansson, Inc.**
Sulfite bleached
Standard grades — softwood, hardwood
Brands: Munkedal SGR; SAB

Munksjo, Aktiebolag
Jonkoping
Agent: **Gottesman & Co., Inc.**
Sulfate, unbleached
Standard grades
Brand: Aspa

Munksunds Aktiebolag
Lulea
Agent: **Cellulose Sales Co., Inc.**
Sulfate, unbleached
Munksunds "50", "60" and "70" Prime Qualities
Screenings
Munksunds "K" refined screenings
Groundwood
Lulea groundwood mill

Oskarstrom Sulphite Mills Aktiebolag
Oskarstrom
Agents: **Gottesman & Co., Inc.**
Elof Hansson, Inc.
Sulfite
Easy bleaching
Standard grades
Brands: Oskarstrom TT/S; TT; H; X

Ostrands Aktiebolag
Sundsvall
Agent: **Cellulose Sales Co., Inc.**
Sulfate, bleached
Brands: Ostrand "W88" Prime; Ostrand "WB" Half Prime; Ostrand "WII" Second Quality; Ostrand "X90" Prime Birch; Ostrand "XB" Half Prime Birch; Ostrand "HW" Semi-bleached, Soft & Hardwood; Ostrand "X-II" Second Quality Birch
Sulfate, unbleached
Brands: Ostrand "Special" and Ostrand "40" Light Colored Bleachable; Ostrand "50", "60" and "70" Prime Strong Qualities; Ostrand "H" Combined Soft & Hardwood; Ostrand Birch Prime Hardwood

Rottneros Bruk, Aktiebolaget
Rottneros
Agent: **Elof Hansson, Inc.**
Groundwood
Standard unbleached—wet

Sandvikens Cellulosa A.B.
Sandviken
Agent: **Nordicus Inc.**
Sulfate, unbleached
Special grades
Standard grades
Brands: S Crown S; Special Cable

Scharins-Soner Aktiebolaget
Clemensnas
Agent: **Elof Hansson, Inc.**
Groundwood
Standard unbleached—dry
Brand: Skelleftea

Skonviks Aktiebolag
Skonvik
Agent: **Cellulose Sales Co., Inc.**
Sulfite, bleached (Mitscherlich)
Skonvik "190" Bond grade; Skonvik "G" Glassine grade; Skonvik "Crown" Book grade

Stjernfors-Stalldalen Aktiebolaget
Stalldalen
Agent: **Elof Hansson, Inc.**
Sulfite, unbleached
Standard grades
Brand: Stalldalen SS

Stora Kopparbergs Bergslags A/B
Falun
Agent: **Stora Kopparberg Corp.**
Sulfite, unbleached
Standard grades
Sulfate, bleached
Super grades
Brands: Stora IA Prime Strong; Stora 32

Storviks Sulfit Aktiebolag
Ockelbo
Agent: **Pagel, Horton & Co., Inc.**
Sulfite, unbleached
Special grades
Standard grades
Brands: Storvik HS Extra Prime Strong Unbleached; Mitscherlich Sulphite; Storvik HS Prim Strong Unbleached Mitscherlich Sulphite; Storvik Strong Unbleached Mitscherlich Sulphite; HS.

Stroms Bruks Aktiebolag
Stromsbruk
Agents: **Bulkley, Dunton Pulp Co., Inc.**
Castle & Overton, Inc.
Sulfite, bleached
Dissolving and related grades
Standard grades
Brand: Stroms

Sunds Aktiebolag
Sundsvall
Agent: **Cellulose Sales Co., Inc.**
Sulfite, unbleached
Brands: Strong Mitscherlich and Easybleaching qualities; Sund "I" Prime Mitscherlich; Sund "SU" Half Prime Mitscherlich; Sund "Three Crown" Prime Easybleaching; Sund "Two Crown" Half Prime Easybleaching; Sund "K" Refined Screenings

Svano Aktiebolag
Svanobruk
Agents: **Gottesman & Co., Inc.**
Perkins-Goodwin Co.
Elof Hansson, Inc.
Sulfite, unbleached
Special grades
Standard grades
Brands: White Swan; White Swan LN; H; S; IIB; LN/H

Svartviks Aktiebolag
Sundsvall
Agent: **Cellulose Sales Co., Inc.**
Sulfite, bleached
Brands: Svartvik "Select" "Pulpcose" Dissolving and High Alpha Acetate Pulps

Svenska Cellulosa Aktiebolaget
Stockholm
Agent: **Cellulose Sales Co., Inc.**
See separate listings for:
Essviks Aktiebolag
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Kramfors Aktiebolag
Munksunds Aktiebolag
Ostrands Aktiebolag
Skonviks Aktiebolag
Sunds Aktiebolag
Svartviks Aktiebolag

Aktiebolag Tegefors Verk
Hjerpen
Agent: **Price & Pierce, Ltd.**
Sulfite, bleached
Special grades
Standard grades
Brands: Polar Bear "G" Greaseproof Glassine; Polar Bear "Strong"; Polar Bear "Standard"; Polar Bear "Soft"; Polar Bear "Birch" (hardwood)

Uddeholms Aktiebolag
Uddeholm
Mills at: Skoghall near Karlstad
Agent: **Perkins-Goodwin Co.**
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Dissolving and related grades
Special grades
Sulfate, bleached
Dissolving and related grades
Special grades
Brands: Alba; Ultra; Raya; Lintra; Cordicel; V-pulp

Utansjo Cellulosa A.B.
Utansjo
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Sulfate, unbleached
Standard grades
Brands: Crown WW; Crown WWK; Crown WK; Crown WWL; WWK; WL; WK

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Brands: Thurbo

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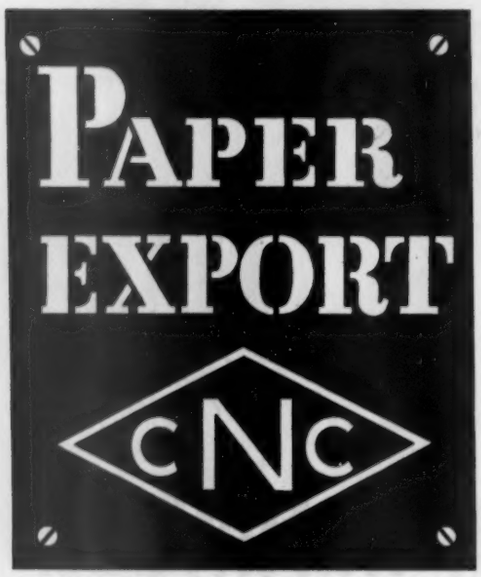
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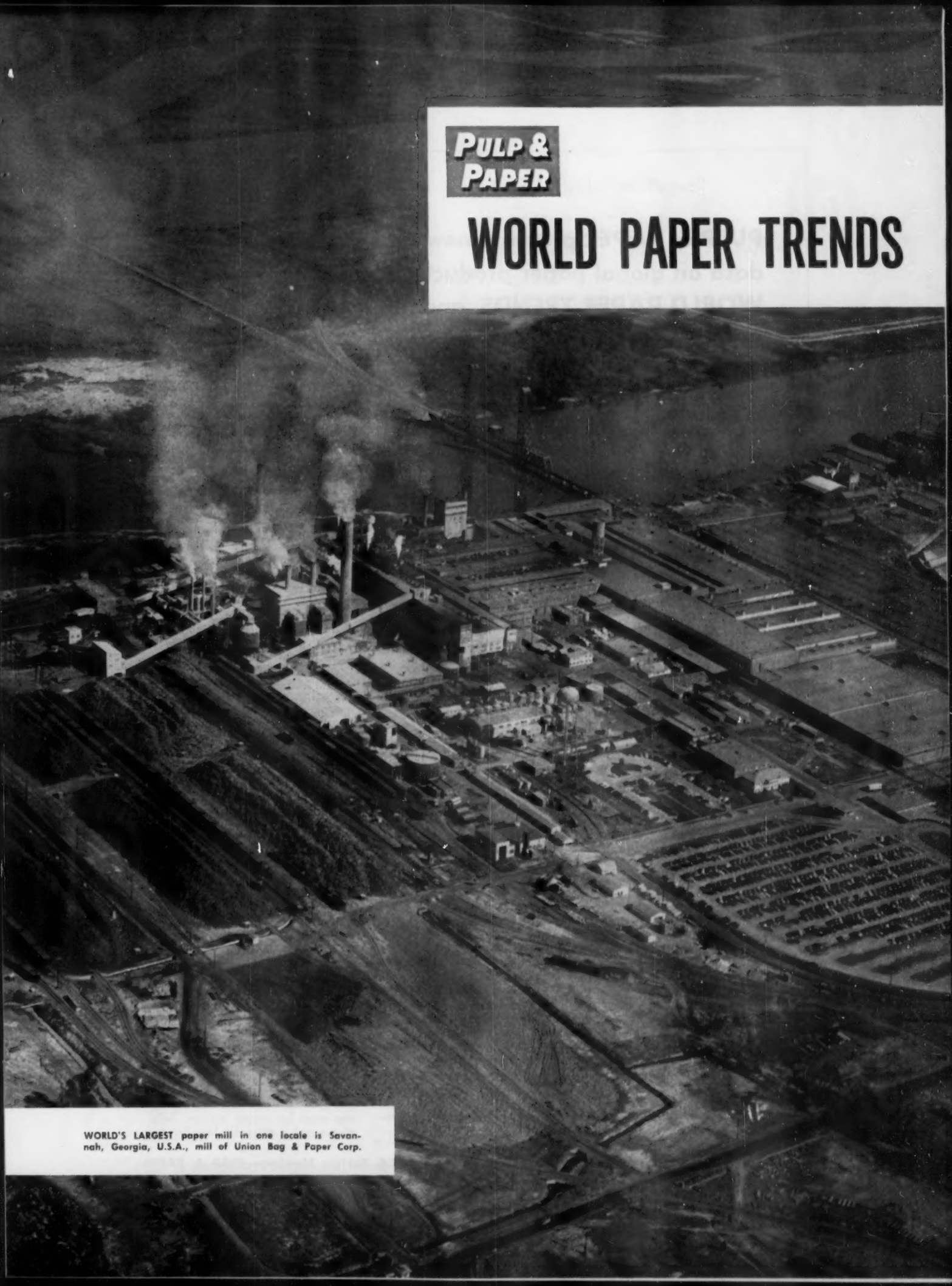
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PULP & PAPER

WORLD PAPER TRENDS



WORLD'S LARGEST paper mill in one locale is Savannah, Georgia, U.S.A., mill of Union Bag & Paper Corp.

PULP & PAPER presents new and exclusive data on global paper production, showing WORLD PAPER TRENDS, and . . .

The Free World vs. the Red World . .

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PROCESSING A MULTITUDE of articles, reports and letters submitted to PULP & PAPER from all corners of the earth, this WORLD REVIEW NUMBER is able to present the first documented estimate of total world paper production (all grades, including paperboards) made since the 1950 estimates by American Paper & Pulp Association.

Here are PULP & PAPER's grand totals for production and new per capita averages—recapped from scores of first-hand and exclusive reports from paper company presidents, association secretaries, industry editors, industry consultants, etc., in many nations, dominions and territories:

TOTAL WORLD PAPER PRODUCTION

1953 52,286,312

TOTAL FREE WORLD PAPER PRODUCTION

1953 48,581,312

TOTAL COMMUNIST WORLD PAPER PRODUCTION

1953 3,705,000

Estimating total world population at 2,400,000,000 in 1953, including about 950,000,000 behind the Iron and the Bamboo Curtains (Russia and its European Satellites, Red China, North Korea and Viet-Minh held part of Indo-China), the apparent per capita annual consumption rates can be calculated. It is estimated total world consumption of paper in 1954 was easily within a half million tons of world production.

WORLD'S AVERAGE PERSON—PAPER USED IN A YEAR

1953 ..... 43 lbs.

AVERAGE PERSON IN FREE WORLD—PAPER USED IN A YEAR

1953 ..... 67 lbs.

AVERAGE PERSON IN COMMUNIST WORLD—PAPER USED IN YEAR

1953 ..... 7¾ lbs.

Red World Vs. Free World

The preceding figures suggest some intriguing ideas on how the Red World—as it was constituted in mid-1954—would stack up against the Free World "on paper" in any war.

In fact, in a cold war, these contrasting figures have a significance. The explain, in a dramatic fashion, why there could exist a Red World, engaged in a worldwide struggle against a Free World. Who would want to be in anything but a Free World?

A part of the world which is so illiterate, so far below the Free World in its living standards—as revealed in those contrasting per capita paper consumption figures—that kind of a world could conceivably be indoctrinated into the ranks of the enemies of a Free World. For its subjects don't even faintly understand the Free World, in which they have had little or no experience, and they have no idea of its precious spiritual and moral values.

In a "hot" war, of course, the part of the world with the most paper production, and pulp production, has critical advantages, demonstrated in many wars of the past—paper for propaganda, for communication, for wet strength overseas shipping cartons, and the pulp to make 100-and-1 essential paper, tire cord, other rayon, cellophane, and plastic products, as well as nitrocellulose to fire the guns. Strangely, this lesson wasn't learned in Washington, D.C., until 1942, after three pulp mills were closed as unessential and lost their labor force for the duration. A critical shortage then rudely awakened the wartime bureaucrats to what they had done.

As this was written, some Free World leaders were inclined to cross off India's 390,000,000 inhabitants as lost to the Red World for all practical purposes. But India made only 152,000 tons of paper in 1953, and its imports of 137,000 (all from the Free World) gave it only a 2½ lbs. per year per capita consumption. This—more than all the Nehrus and all the other reasons sagely discussed in the press—is the obviously real reason why India could not be counted a reliable part of the Free World.

Soviet Russia itself makes a sizable portion of the Red World paper production. But Red China, with a half billion people under its rule, contributes only about 400,000 tons. There are uncounted hundreds of little crude and antique paper mills in China, making at best only a few tons each per day and many would count their product in pounds.

U. S. Pulp Producers Association, Inc., on May 17, 1954, estimated the Red World woodpulp production at 4,000,000 tons. Czechoslovakia probably exported some pulp to Free World countries; perhaps Russia did too. And Red World woodpulp also was used for rayon, acetate, cellophane and a nitrocellulose for war

. . . "on Paper"

purposes. Even allowing for straw and other fiber pulps for paper, the USPP woodpulp figure is, therefore, not inconsistent with PULP & PAPER's estimate of paper production in the Red World.

The last estimate of world paper production was the 1950 estimate of 46,955,000 tons made by the APPA. It did not include a few countries now counted in PULP & PAPER's 1953 figure, but these omissions could not have added up to more than 250,000 tons in 1950. So, considerable papermaking expansion is revealed in the world by the new 1953 figure calculated from the contributions to PULP & PAPER. More details are given in the sections on each nation and territory in this WORLD REVIEW NUMBER.

U. S. A. LEADS THE WORLD, CANADA SECOND

There is one big fact that stands out in this world paper production survey. The United States, with 161,000,000 people, only about 1/15 of the world's inhabitants, made approximately one-half of the whole world's production:

UNITED STATES PAPER PRODUCTION

1953 ..... 26,458,781 tons

As for world *consumption* of paper, the U.S.A. required even a larger share, close to 60%. It imports most of its newsprint from Canada. Some 40 years ago, there were about 65 newsprint mills in the U.S. when pressure by newspaper publishers eliminated the tariff on newsprint, alone among all paper grades. As a result over 50 of these mills quit newsprint—half of them folding up, the other half go-

The Free World—"on Paper"

Country	*Total Paper Production (in short tons)*	*Population*	*Per Capita Consumption**
United States	26,458,000	161,900,000	392 lbs.
Canada	7,266,000	14,000,000	250
Argentina	191,925	18,379,000	44
Brazil	330,000	57,100,000	15
Chile	52,500	6,070,000	22
Colombia	3,000	11,266,000	11
Cuba	55,000	5,814,112	53.8
Mexico	201,000	27,000,000	17.7
Peru	24,500	8,714,000	7
Uruguay	22,000	2,353,000	45.5
Venezuela	10,000	5,280,000	13.8
Bolivia	800	3,089,000	2
Rest of America	1,000	———	
Sweden	1,348,000	7,126,000	200
Finland	1,156,000	4,100,000	106
Norway	501,000	3,343,000	130
West Germany	2,170,000	49,300,000	95
Britain	1,668,300	53,000,000	144
France	1,573,000	42,000,000	73
Belgium	307,833	8,750,000	95
Netherlands	724,000	10,426,000	105
Eire	12,000	2,948,000	50
Austria	394,000	6,934,000	42
Italy	731,500	48,800,000	32
Yugoslavia	70,000	16,850,000	30
Denmark	135,000	4,300,000	121
Portugal	41,000	8,441,312	16.8
Greece	28,000	7,602,000	13
Switzerland	280,000	4,850,000	126
Spain	160,000	28,306,000	20
Turkey	32,600	22,000,000	5
India	152,023	370,000,000	1.5
Japan	1,941,000	87,190,000	44
Philippines	12,000	19,000,000	10
Taiwan	38,500	8,128,374	10
Israel	500	1,430,000	8
Pakistan	10,000	75,687,000	2
Fr. Indochina	1,500	15,000,000	.7
Indonesia	2,200	78,163,000	.5
Burma	500	18,859,000	1.3
Ceylon	500	8,103,600	3.7
Siam	1,500	19,192,000	2.4
Rest of Asia	1,000	———	
Australia	270,000	8,500,000	130
New Zealand	55,000	2,000,000	125
Algeria	26,000	9,251,000	11
Egypt	25,850	22,000,000	11
French Morocco	25,000	8,617,000	6.5
South Africa	61,000	13,153,000	36
Spanish Morocco	1,500	1,082,000	3.8
Rhodesia	6,000	4,135,350	5.1
Rest of Africa	1,000	———	
Total	48,581,312	1,400,000,000	67

**Imports and exports, as well as production, are included in calculating apparent or known per capita consumption figures.*

ing into higher quality, more lucrative markets.

U. S. A. set an all-time record in 1953 for total paper consumption—about 31,300,000 tons. This gave the U. S. A. a per person consumption rate of 392 lbs. a year. That's 50% higher than Canada and three times higher than the next closest challengers, countries like Britain (where newsprint remained the last rationed paper grade in 1954, but was expected to be released), Scandinavia, Switzerland and Holland. But the U. S. per capita rate was 10 to 30 times that of most European countries and Latin American countries. It was 100 to 300 times the rates in Asia, Africa, even in some other Latin American nations!

Just a tiny increase in the individual use of paper in dozens of countries with big populations could create a phenomenally increased demand for millions of more tons of paper! Several years ago this WORLD REVIEW editorially first called the pulp and paper world's attention to this fascinating possibility, and these annual issues each year have brought readers new information on this vital disparity between nations as users of paper.

The "Red" World—"on Paper"

Country	*Total Paper Production*	*Population*	*Per Capita Consumption**
Russia	1,581,000	193,000,000	15.5 lbs.
Red China	40,000	601,000,000	1.6
East Germany	679,000	17,400,000	45
Czechoslovakia	467,000	12,463,000	39
Poland	360,000	24,977,000	35
Rumania	132,000	16,094,000	7
Hungary	55,000	9,313,000	15
Bulgaria	25,000	7,235,000	45
North Korea	5,000	4,500,000	n.a.
Red Indochina	1,000	12,000,000	.7
Total	3,705,000	950,000,000	7.75

**Imports and exports, as well as production, are included in calculating apparent or known per capita consumption figures.*
n.a. Not available.

Eight Other Nations Make Over A Million Tons

There are only eight other nations in the whole world that now can make over one million tons of paper per year.

Canada is an easy second. It made 7,266,000 tons in 1953 and is unique in that it ships newsprint to many nations around the world, giving them their basic ingredient of a free press.

Others in the million-ton producing class, but making much less than Canada, are: West Germany, 2,170,000; Japan, 1,941,000; Britain, 1,668,300; Russia, 1,581,000; France, 1,573,000; Sweden, 1,348,000, and Finland, 1,156,000.

Britain, which made 1,688,300 tons in 1953, shed its long-endured ration restrictions on meats, etc., in 1954. While facing shortages of rags, it was sure to step up its paper production to close to 2,000,000 tons on the basis of increased imports of woodpulp made by mid-1954.

Japan made a phenomenal comeback for a defeated nation—producing 1,941,000 tons of paper in 1953. This was 18% above its best prewar mark. West Germany, despite its amputation at Potsdam and loss of forests and paper mills in East Germany, was making a phenomenal industrial recovery, as revealed in the section on the German nation in this WORLD REVIEW.

Looking To the Future

Where are the greatest opportunities for further immediate expansion of the paper industry?

The nations with the coniferous forests, mostly in North Temperate zones, are favored. These are U.S.A. and Alaska, Canada and Russia, which have the largest untapped forests, but also New Zealand, Australia and some areas of Latin America. They are favored by extent of their resources. Also, because coniferous woods are still producing the choice, preferred fiber. Another reason, these countries have machinery manufacturers, builders, skilled labor and existing big markets close at hand.

By 1954 all the big pulp and paper manufacturers of North America, those with substantial forest holdings, have their wood supply planned on a perpetual yield growth basis. New Zealand is growing the biggest man-made forest in the world and one of the fastest growing.

But in the more distant future, pulp and paper industries may also be developed on a grand scale in tropical and semi-tropical climes of Latin America, Africa and Asia. By then, the new processes which were discovered and developed to make the use of hardwoods in woodpulp possible, will be improved and made available to others. Italians are reputed to have done more than any others to bring this about. Germans, Americans and French have developed these hardwoods processes, but they will be no less available to potential mills in tropical climes where hardwoods abound. In fact, Americans, Germans, French, Italians and others probably will help build the mills.

But for the present, these remote areas would be high cost mills because they are far away from machinery manufacturers, builders and skilled operators. And they are far from the big markets.

Wood is still the most economic and plentiful raw material for paper. In a given acre, in a given period of time, trees will grow more fibers than anything else. Where little suitable wood is available and where cane bagasse, straw and other agricultural wastes are plentiful, more new mills are being built using these other fibers. In Holland, straw pulping is a major industry. But in most places, it is a secondary resource as are other wastes. Bamboo is also used where it is plentiful.

An increasing shortage of rags in the U. S. A. and in Europe is stimulating demand for quality woodpulp for printing and bond papers. With the new mills of 1953 and 1954 in U. S., Alaska and Canada, the North American pulp companies are in a stronger position to supply world paper and rayon needs.

This is a year of historic change in the world pulp and paper picture. It is a year of new departures for new goals.



NORTH AMERICA

UNITED STATES OF AMERICA

1954 Promises to Be a Good Year

Population: 161,969,000; *Per capita paper consumption:* 392 lbs.

Production (sh. tons)	*1953*	*1952*
All paper	26,458,781	24,422,785
Chemical woodpulp	13,012,636	11,639,413
Mechanical woodpulp	3,495,170	3,439,028
Semi-chem. woodpulp	1,028,721	828,917
Paper imports	5,231,326	5,191,051
Paper exports	474,730	592,231
Pulp imports	2,157,000	1,937,000
Pulp exports	162,000	212,000

(paper inc. board; mech. pulp inc. defibrated and exploded).

Principal paper grades made: Containerboard, book paper, coarse paper.

Principal paper imports from: Canada.

Principal paper exports to: Canada.

Principal pulp imports from: Canada, Sweden, Finland.

Principal pulp exports to: Britain, Mexico, France.

(All the 1953 U.S. pulp and paper production figures shown in this section are revised figures as issued by U.S. Census Bureau, June 29, 1954. Paper figures, as issued in Feb. 1954, were revised downward slightly; pulp figures were revised upward slightly.)

HAVING ESTABLISHED a whole flock of new all-time production and consumption records in 1953, the United States pulp and paper industry passed the mid-year mark in 1954 so splendidly that it began to look like it might pull off some real surprises before 1955.

The gloomy predictions of a few "faint-of-heart" back in February looked rather ridiculous in July.

The United States paper industry was on its way to another production year of over 26 million tons for the third time in four years. It had 13,100,000 tons at the half-way mark —with two big new paper mills and several new machines adding substantially to output in the last half of the year.

The industry experts were having a grand old time, happily arguing among themselves whether things were going to get just a wee bit better or a weeny-weeny bit worse in late 1954.

And, then, look at the American woodpulp industry—with a lot of new production coming in, imports decreasing and export business picking up. It surely was on its way to some records of sorts. Just on the eve of the mid-year startups of three big new pulp mills, the U.S. pulp industry already was running a step ahead of its all-time record-breaking pace of 1953.

Facts Confound the Sour-Pusses

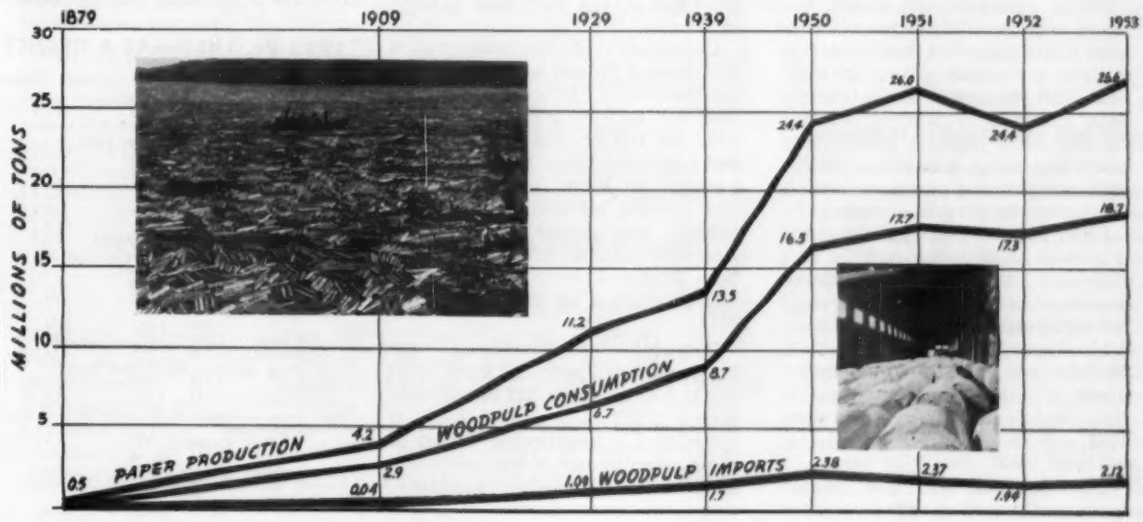
The facts in the case—as they could plainly be seen during July, 1954—were these:

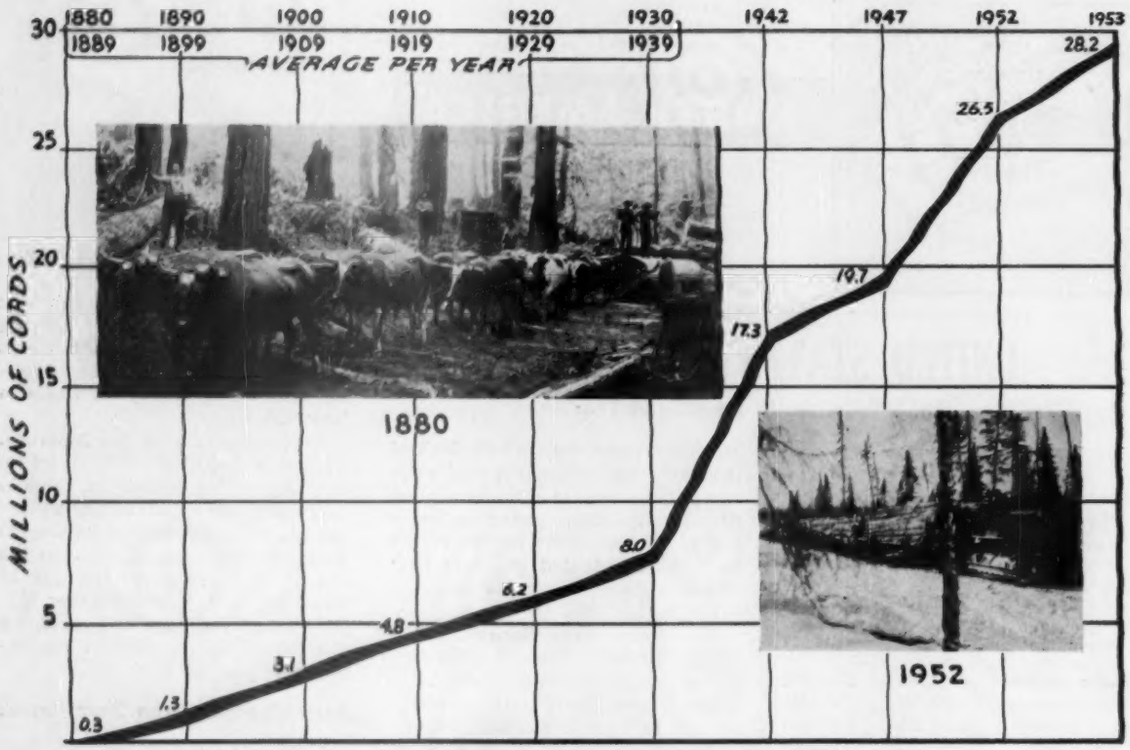
Up to that warm month, the American pulp and paper industry had had very little to complain about. For almost two years since

Pulp and Paper in U.S.A.—Trends Over 70 Years

Chart prepared by PULP & PAPER from U.S. census statistics shows long-term trend is steadily upward—and increasing independence for pulp supply.

Since 1879, when population was only 50,000,000 and paper production was 452,000 tons, U.S. population has multiplied more than three times—and paper production has increased over 50 times. Woodpulp production has multiplied over 700 times in this 70-year period. There was no sulfite or kraft in that first 1879 production, but there was by 1909. As the U.S. becomes more self-sufficient in pulp production, woodpulp imports do not keep pace with woodpulp consumption line.





Pulpwood Consumption in the United States

Chart prepared by PULP & PAPER from U.S. census statistics shows record over three-quarters of a century.

Pulpwood consumption has increased nearly 100 times since 1880, and the trend continues upward. One industry expert forecasts that North America will be using 2½ times as much wood for pulp and other forest products by 1975. Population growth alone will require more woodpulp, and intensive tree-farming and other modern forest practices, rapidly improving the outlook for wood resources, will help produce the required supply.

the election of 1952, it had enjoyed more stability and good health for a longer period than ever before in its history. Despite a slight temporary "recession de luxe," as one observer described it, the U.S. industry had never "had it so good" in the living memory of its leadership.

Prices were generally steady, demand was generally strong. There were a few mild dips, but no jarring stalls as in its past history. By midyear 1954, paperboard was coming back strong after slipping a little. On the other hand, it looked very much like tissue paper, and maybe book and printing papers, as well as woodpulp might set new records.

Right smack in the middle of the uncertainties of last Feb. 1954 (not everyone talked or whispered gloomily but there were a few vocal sad sacks and others who were fearful at Paper Week), President T. B. McCabe was blandly forecasting a doubling of Scott's sales. Others in tissue became mighty busy too. June 1954 saw tissue output already up 8% over 1953!

The sales staffs of many companies were really getting down to hard thinking and hard work in 1954, and that probably was the biggest reason that, by midyear, paper was slightly ahead of last year, paperboard was only behind 5% but closing in fast, and together they were behind only 2%. All woodpulp was up 1% and market pulp was up 7% (with several new mills to come in later).

Comparable at that time was a 23% slideoff for primary metals, 15% for machinery, 12% for furniture, 10% for textiles and apparel, and 14% for rubber and leather. Pulp and paper was doing better than the average, so were food, beverages and tobacco, off only 1%, and the outlook was generally good. The American purchasing agents association predicted improving business and production in the last half of 1954.

Reduction of inventories; the maintenance of personal incomes in the U.S.A. at about 250 billion dollars; a slight reduction, at least, in taxes; and a lengthening period of peace, even though it was uncertain, were other reasons—plus salesmanship—why some doctors of gloom and some politicians (trying to get back to power in 1954) already were proved false prophets by midyear.

Still Spending Big Sums on Mills

A Department of Commerce survey showed paper and allied products were spending $430,000,000 in 1954 for new plants and equipment

1953 Vs. 1952—AT A GLANCE

U.S.A. Data	*1953*	*1952*	Percent Change
Pulpwood (in thousands of cords)			
Receipts	27,887	27,375	+1.9
Consumption	28,150	26,476	+6.3
Woodpulp (in thousands of short tons)			
Produced	17,525	16,473	+6.4
Imported	2,157	1,937	+11.4
Exported	162	212	−23.1
Consumed (total)	19,481	18,041	+8.2
—for paper	18,682	17,286	+8.1
—non-paper	799	755	+5.8
Market Woodpulp (in thousands of short tons)			
Produced	1,783	1,849	−0.4
From Canada	1,033	1,040	−1.0
From Europe	542	360	+51.0
Consumed (total)	3,284	2,942	+12.0
—for paper	2,500	2,251	+11.0
—non-paper	784	690	+14.0
Waste Paper (in thousands of short tons)			
Receipts	8,426	7,815	+7.8
Consumed	8,531	7,881	+8.2
Paper and Paperboard (in thousands of short tons)			
Total produced	26,566	24,423	+8.8
—paper	11,387	10,898	+4.5
—paperboard	12,307	10,772	+14.2
—wet machine	155	139	+11.5
—building type	2,718	2,614	+4.0

—almost as much as in 1953. International Paper Co., by far the biggest company in the field, announced it would spend $43,895,400 for new plants and equipment and timber in 1954 and 1955 (it spent $26,791,500 in 1953).

British Bowater's made the biggest "first mill" investment in history in U.S.—$55,000,000 in Tennessee.

Ketchikan Pulp put about $50,000,000 into a new mill in Alaska—seven times as much as Secretary Seward paid Russia for all the half million square miles of Alaska. And in due course that pulp mill should bring far greater wealth to many more people—directly and indirectly—than all the gold ever mined, all the fish ever caught and all the furs ever trapped in all Alaska history!

Great Northern was spending $30,000,000 on new newsprint production in late 1954, Rayonier and Buckeye each put around $25,000,000 in new pulp mills. And in October, East Texas Pulp & Paper was to start up—another big investment. St. Regis announced plans for a big new mill in West Canada.

Any gloom dispensers still around in the summer of 1954 would have a pretty hard time finding anything to pick at in the solid financial structures which most of the pulp and paper companies of America had build up. They have cut down their debts and improved their efficiency.

From sales of about $1,500,000,000 in 1939 and percentage of net earnings to sales of 5.8%, the U.S. paper industry had become a business of close to $9,000,000,000 with net earnings to sales of close to 8%. Its basic utility, its sound finances, gives it a high degree of stability.

More Babies Coming—Good News for Mills

One of the most favorable factors for the pulp and paper industry, third fastest growing of U.S. industry, is the steady production of more babies. In just 21 years the population of the U.S. is expected to reach 193,000,000. For the 162,000,000 inhabitants in 1954, the per capita consumption rate was over 390 pounds as it ranged from 372 to 397 pounds per year for the past four years. It was only 244 pounds in 1939 and only 119 pounds in 1919!

Here's how steady U.S. paper production has been, through a period of adjustment from war to peace economy, and through a period of reversing government paternalistic trends of 20 years' duration:

1950—24,377,222 tons.
1951—26,086,115 tons.
1952—24,413,212 tons.
1953—26,458,781 tons.
1954—Over 26,000,000 tons.

U.S. woodpulp production has been steadily increasing since before World War II. In fact it made only very minor dips in 1952 and 1949, and during World War II—when three large mills were shut down by government order before Washington belatedly discovered how essential pulp was. Here is the recent woodpulp record:

1950—14,807,575 tons.
1951—16,494,386 tons.
1952—16,472,979 tons.
1953—17,537,295 tons.
1954—Near 18,000,000 tons.

Expansion in South and Far West

Expansion of pulp capacities in the past few years has been largely in the South, Pacific Northwest and Alaska. Consumption of pulpwood in the first four months of 1954 was 9,423,936 cords, 1% over the same period a year ago. Even in this four months—before any new 1954 mills were producing—dissolving pulp and bleached and semi-bleached sulfate pulp production in the U.S. had increased over 11% and exports of these increased over 125%. All pulp exports increased 95%. Total pulp production was 5,887,644 tons—up 1%. Canadian imports had increased

A SPECIAL FEATURE OF EVERY WORLD REVIEW NUMBER

How the States Rank in Paper and Woodpulp Production—1952 (Latest Available)

PAPER AND BOARD

State	Production (Tons)	Percent of U.S. Total
1. New York	1,735,638	7.1
2. Wisconsin	1,639,631	6.7
3. Louisiana	1,522,006	6.2
4. Michigan	1,462,602	6.1
5. Pennsylvania	1,408,635	5.8
6. Maine	1,371,967	5.6
7. Ohio	1,358,524	5.5
8. Florida	1,255,989	5.2
9. Washington, Idaho, Colorado	1,142,873	4.7
10. Georgia	1,010,430	4.2
11. South Carolina	937,130	3.8
12. New Jersey	923,486	3.8
13. Virginia	784,197	3.2
14. Illinois	760,771	3.1
15. California	758,597	3.1
16. Arkansas, Texas, Oklahoma	735,871	3.0
17. Minnesota	688,704	2.8
18. Massachusetts	678,796	2.8
19. Mississippi	646,804	2.6
20. Alabama	635,929	2.6

WOODPULP

State	Production (Tons)	Percent of U.S Total
1. Washington	2,067,708	12.5
2. Florida	1,485,571	9.0
3. Louisiana	1,378,646	8.4
4. Maine	1,303,691	7.9
5. Georgia	1,227,057	7.5
6. South Carolina, Maryland	1,015,095	6.2
7. Wisconsin	992,623	6.0
8. Mississippi	971,906	5.9
9. Alabama, Tenn.	813,227	4.8
10. North Carolina	750,016	4.6
11. Virginia	732,096	4.4
12. Ark., Texas	676,827	4.1
13. New York	630,928	3.8
14. Oregon	616,410	3.7
15. Minnesota, Iowa	482,890	2.9
16. New Hamp., Vermont, Mass.	313,812	1.9
17. Pennsylvania	302,536	1.8
18. Calif., Idaho	262,481	1.6
19. Michigan	239,226	1.5
20. New Jersey	85,812	0.6

Note—U. S. Census Bureau combines some states in order to avoid disclosing production of individual mills.

***NEW YORK** maintains its leadership in paper production and **WASHINGTON** remains at the head of the column for pulpwood production, but in both categories Louisiana has slipped one notch from her former second place to third place. In paper, Wisconsin moves up to second place, and Florida is the runner-up for pulpwood.*

HOW U. S. REGIONS COMPARE • 1953 PRODUCTION

(*In tons*)

	U. S.	Northeast	No. Central	South	West
Woodpulp, all types	17,537,295	2,532,909	1,986,307	9,893,471	3,124,608
Paper, all grades	11,394,406	4,226,584	2,874,721	3,086,928	1,206,173
Paperboard	12,220,162	2,354,206	3,137,833	5,528,597	1,199,526
Wet machine board	155,261	102,025	(d)	(d)	(d)
Construction paper & board	2,688,952	538,869	(d)	(d)	(d)
Total all paper & board	26,458,781	7,221,684	6,740,610	9,770,241	2,726,246

(d) withheld to avoid disclosing figures for individual company

11%; those from Europe were down 40%.

A Rapidly Growing Industry

Total U.S. paper production is twice what it was when World War II broke out (1939). It is more than four times what it was in 1919. It is 12 times what it was in 1899. Demand for printing, writing and packaging papers has increased three times in just 20 years.

U.S. pulpwood production is four times what it was 20 years ago. U.S. pulp production is over twice what it was before World War II, four times what it was in 1925, and five times what it was in 1919.

In comparison with 75 years ago, paper production in U.S.A. has increased 50 times. Woodpulp production has increased 700 times.

How Industry Became Stabilized

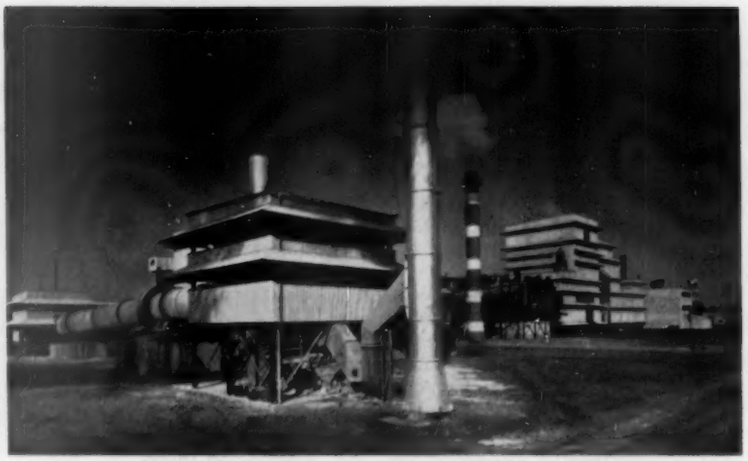
So much for spectacular figures, except just one. It is now established that over 10% of the *entire* American economy is based upon pulpwood and its many and varied products. And that has provided a sound reason for the long-term planning of pulp and paper industries.

The U.S. pulp and paper industry now owns 25,800,000 acres of timberland, with 2,000,000 acres under lease. But this only tells a part of the story. For these mills—there are only about 300 pulp mills—have over 1,234 trained foresters. These men are employed to a large extent to help thousands of small woodlot owners to turn their tree crops to profit. They supervise planting 75 million seedlings a year.

The pulp and paper industry is responsible for the great majority of all the Tree Farms that now dot all areas of U.S. Tree Farms are a creation of private industry exclusively.

The number of American pulp and paper companies has decreased to about 490—down from a postwar peak of 570 six years ago. This has involved many mergers without reducing the keen competition that exists in all divisions of the U.S. industry. Mergers have had these beneficial results:

1. Financial strengthening of companies.



NEW DESIGN FEATURES are incorporated in latest U.S. mills. This modern mill of St. Regis Paper Co., Jacksonville, Fla., has louvered work floors with metal overhang to protect against the sun. Shown here are lime kiln and recovery and power plant buildings.

2. Integration of complementary operations.

3. More efficiency and modernization.

4. Finally, forest conservation—the bigger its holdings, the longer a company can permit timber tracts to grow more fiber.

New Developments in U.S.A.

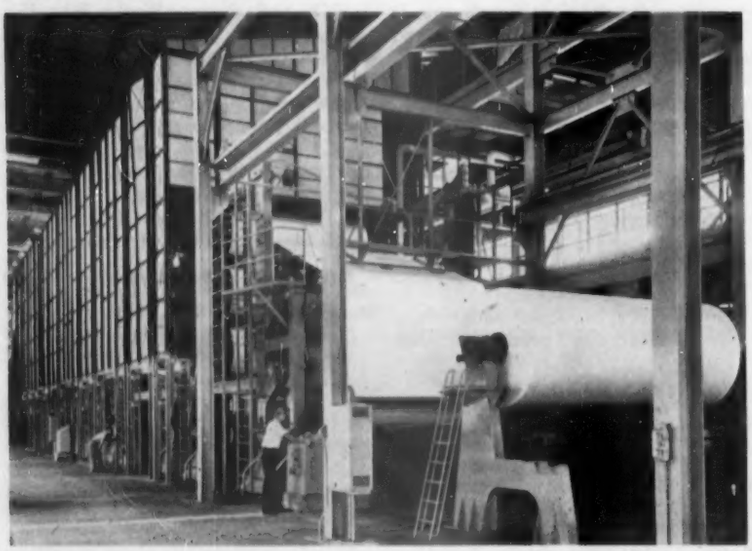
Most important and far-reaching of all technical developments of 1953-1954 in the U.S. industry is the new emphasis on forest genetics. The industry is focusing attention on subjecting its woods operations to as thorough and searching technical studies as it has its papermaking and pulpmaking divisions in the past. The Institute of Paper Chemistry launched a new program on seed improvement and tree species improvement.

One research associate at the Institute forecast many more tons of pulp per acre in the future. Fantastic growths may be achieved far exceeding anything considered as normal today.

Here are other prime developments of 1953-54 in the U.S.A.:

A rapid extension of coating for boxboards and offset papers, chlorine dioxide bleaching and more stages of bleaching, many new and improved types of dry log barkers, more pushbutton operations throughout mills, new uses of oak in the Midwest and alder in Far West, more high yield pulping, improvements in food packaging, and speed-up of paper machines with vacuum transfers and other changes.

At considerable cost with little return, if any, mills in many states are solving their pollution problems. They have abated pollution in the



RAYONIER INC.'s modern chemical cellulose mill at Jesup, Georgia, officially started up June 23, 1954. This is dry end of Rice Barton pulp machine with J. O. Ross hood and vapor absorption. There are 10 stacks of 180 in. wide dryers under hood. Two-drum reel winds jumbo rolls of 12 tons each. Unusual is location of 175 in. Fourdrinier section on mezzanine considerably above this floor.

"sulfite" states by about 60%. The industry is turning more engineering skills to this problem; assisting the technical skills already devoting much time to it.

U. S. Newsprint Picture

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BIGGEST NEWS in the newsprint industry in the United States was the mid-1954 startup of Bowaters Southern Paper Corp., in its $55,000,000 plant at Calhoun, Tenn., which adds 125,000 tons annually to U.S. newsprint capacity. Additional impetus to America's long-lagging newsprint industry was the installation by Great Northern Paper Co. at its East Millinocket, Me., mill of the world's fastest newsprint making machine. Scheduled for September production, this machine is expected to run at 2,800 ft. per min. Another expansion on the boards was the addition of a fourth machine at Southland Paper Mills in Texas.

What has happened over the past two decades to the U.S. newsprint industry is graphically shown in the table, prepared exclusively by PULP & PAPER. In 1924, Canada first made more newsprint than the U.S.; today it makes more than five times as much. About 85% of Canada's production goes to U.S. newspapers.

Flight of the newsprint industry from U.S. to Canada resulted from lack of tariff protection. In 1913 there were 65 companies producing newsprint in the U.S.; in 1926 there were only 38; by 1946, just seven. The development of a Southern newsprint industry and assured long-term newspaper contracts have been principal factors in swinging U.S. production upward again.

Fourteen mills are now making newsprint regularly. A number are wholly or partly owned by newspapers. Publisher's Paper Co. in Oregon was recently acquired by two newspaper interests, *Times-Mirror* of Los Angeles and *Deseret News* of Salt Lake City.

The estimated total of 1,259,000 tons to be made this year by these mills, in the data collected by this magazine, is within 3% of the Newsprint Service Bureau's estimate. The slight discrepancy is apparently due to variations in mill reports.

COMPANIES PRODUCING NEWSPRINT IN U. S.

Especially prepared by PULP & PAPER

	1926	1946	1948	1952	1953	1954
	Tons, Estimated Capacity					
Alexandria Paper Co.	15,000	.....	.....	.....	.....	.....
Algonquin Paper Co.	29,000	.....	.....	.....	.....	.....
Blandin Paper Co.	22,000	.....	.....	.....	.....	.....
Bowaters Southern Paper Corp.	.....	.....	.....	.....	.....	70,000
Cliff Paper Co.	13,000	.....	.....	.....	.....	.....
Consolidated Water P. & Pa.	102,000	.....	.....	.....	.....	.....
Coosa River Newsprint Co.	.....	.....	.....	115,000	120,000	120,000
Crown Zellerbach Corp.	174,000	200,000	190,000	210,000	210,000	215,000
Cushnoc Paper Co.	20,000	.....	.....	.....	.....	.....
De Grasse Paper Co.	56,000	.....	.....	.....	.....	.....
Dells Pulp & Paper Co.	12,000	.....	.....	.....	.....	.....
Escanaba Paper Co.	170,000	.....	.....	.....	.....	.....
Finch, Pruyn & Co.	44,000	10,000	.....	.....	.....	.....
Flambeau Paper Co.	14,000	.....	14,000	.....	.....	.....
Gary Paper Mills, Inc.	.....	.....	.....	10,000	10,000	.....
Gilman Paper Co.	17,000	.....	.....	.....	.....	.....
Gould Paper Co.	30,000	.....	.....	.....	.....	.....
Grandfather Falls Co.	11,000	.....	.....	.....	.....	.....
Great Northern Paper Co.	257,000	300,000	330,000	375,000	378,000	378,000
Great Western Paper Co.	20,000	.....	.....	.....	.....	.....
Hennepin Paper Co.	12,000	.....	.....	.....	.....	.....
High Falls Pulp & Paper	8,000	.....	.....	.....	.....	.....
Inland Empire Paper Co.	29,000	.....	17,000	20,000	22,000	22,000
International Paper Co.	323,000	.....	.....	.....	.....	.....
Maine Seaboard Paper Co.	.....	104,000	.....	.....	.....	.....
Manistique Pulp & Paper	20,000	.....	.....	25,000	15,000	15,000
Michigan Paper (plainwell)	.....	.....	15,000	.....	.....	.....
Minn. & Ontario Paper Co.	76,000	.....	.....	.....	.....	.....
Nekoosa-Edwards Paper	10,000	.....	.....	.....	.....	.....
Northwest Paper Co.	14,000	.....	.....	.....	.....	.....
Oswegatchi Paper Co.	16,000	.....	.....	.....	.....	.....
Oswego Falls Corp.	11,000	.....	.....	.....	.....	.....
Pacific Paperboard Co.	.....	.....	7,000	.....	.....	.....
Peavey Paper Mills	.....	.....	9,000	.....	.....	.....
Pejepscot Paper Co.	41,000	.....	29,000	35,000	35,000	35,000
Publishers Paper Co.	9,000	56,000	75,000	80,000	85,000	90,000
St. Croix Paper Co.	55,000	75,000	89,000	90,000	92,000	92,000
St. George Paper Co.	10,000	.....	.....	.....	.....	.....
St. Lawrence Paper Corp.	.....	.....	.....	30,000*	25,000	25,000
St. Regis Paper Co.	115,000	.....	.....	.....	.....	.....
Sheffield Paper Mills	.....	.....	10,000	.....	.....	.....
Sherman Paper Co.	16,000	.....	.....	.....	.....	.....
Southland Paper Mills	.....	55,000	97,000	135,000	137,000	137,000
Tidewater Paper Mills	32,000	.....	.....	.....	.....	.....
Watab Paper Co.	17,000	.....	.....	.....	.....	.....
Waterway Paper Prod. Co.	14,000	.....	.....	.....	.....	.....
West End Paper Co.	13,000	.....	.....	.....	.....	.....
West Tacoma Newsprint Co.	.....	.....	17,000	25,000	50,000	60,000
Wisconsin River Paper & Pulp	25,000	.....	.....	.....	.....	.....
TOTAL	1,739,000	820,000	899,000	1,150,000	1,179,000	1,259000

* *Former St. Regis mill at Norfolk, N. Y.*

NORTH AMERICAN NEWSPRINT CAPACITY PROSPECTS

(in thousands of tons)

	Canada	*United States*	*Total*
1953 Capacity	5,723	1,170	6,893
Potential Increases			
by new machines	537	237	
by new mills	315	247 (includes Alaska)	
by machine improvements	484	12	
1960 Potential	7,059	1,666	8,725
% of Increase	23%	42%	27%

Source: Newsprint Assn of Canada.

Note: Based on information now available as to future demand and economic conditions. The increases indicated could be attained before 1960 or materially exceeded depending on demand.

WORLD NEWSPRINT PRODUCTION

(in short tons)

Country	Average 1935-39	1953	1954
Canada	3,336,786	5,725,000	5,945,000
U.S.A.	907,503	1,080,000	1,175,000
Argentina	0	55,000	55,000
Brazil	4,000	30,000	55,000
Chile	4,350	13,000	15,000
Peru	n.a.	0	0
Britain	961,800	705,000	750,000
Finland	456,125	480,000	500,000
Norway	295,500	169,000	164,000
Sweden	299,015	359,000	367,000
Austria	70,550	86,000	100,000
Belgium	51,870	62,000	66,000
France	597,000	550,000	540,000
German Republic	216,000	210,000	210,000
Netherlands	99,285	115,000	115,000
Portugal	2,000	2,000	2,000
Switzerland	54,500	55,000	55,000
Italy	74,500	132,000	143,000
Spain	27,600	27,000	27,000
Turkey	0	5,000	5,500
Yugoslavia	0	5,500	0
Egypt	0	neg.	neg.
India	0	0	15,000
China	0	20,000	20,000
Taiwan (Formosa)	Incl. in Japan	8,500	9,000
Japan	406,200	464,000	500,000
South Korea	Incl. in Japan	15,000	15,000
Australia	0	48,000	67,000
Sub-Total	7,554,835	10,177,000	10,629,500
Russian Bloc	609,000	700,000	700,000
World Total	8,163,835	10,877,000	11,329,500

source: Newsprint Assn. of Canada

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U. S. PULP & PAPER INDUSTRY

Number of Companies and Mills

		—Mills—	
	Co's	*Paper*	*Pulp*
1946	517	735	242
1947	560	758	241
1948	570	768	245
1949	565	764	255
1950	572	767	259
1951	530	769	278
1952	490	768	303
1953	483	772	299

Wages and Industry Worth

Year	*Wage Earners*	*Wages Paid*	*Industry Worth*
1849	6,785	$1,497,792	$7,260,864
1869	18,021	7,208,691	34,556,014
1889	31,050	13,204,828	89,829,548
1899	49,646	20,746,426	167,507,713
1909	75,978	40,804,502	409,348,505
1919	113,759	135,690,642	905,794,583
1929	128,049	173,077,781	1,250,000,000
1939	137,445	175,687,842	1,700,000,000
1943	150,000	299,000,000	1,990,000,000
1946	167,000	366,000,000	2,420,000,000
1949	198,000	614,000,000	3,590,000,000
1950	205,000	694,000,000	4,080,000,000
1951	212,000	780,000,000	4,400,000,000
1952	219,000	839,000,000	4,890,000,000

Source: U. S. Census Bureau, A.P.P.A.

UNITED STATES PULP AND PAPER INDUSTRY STATISTICS

	In Billion of Dollars			*In Millions*		*No. Employes*	*Tons Per*	*Wages Per*	*Unit Production*
	Assets	*Net Worth*	*Sales*	*Taxes*	*Wages*	*Thousands*	*Employe*	*Ton*	*Per Man Hr.*
1939....	$2.36	$1.70	$1.45	$49	$176	138	98	$13.0	100.0
1942....	2.68	1.92	2.46	265	284	164	104	16.6	101.9
1945....	2.97	2.13	2.88	214	352	159	109	20.2	99.1
1948....	4.68	3.34	5.38	346	612	205	107	27.7	111.1
1949....	4.89	3.59	4.79	264	614	198	103	30.2	115.7
1950....	5.59	4.08	5.89	529	694	205	119	28.6	125.0
1951....	6.60	4.40	7.22	982	780	212	123	29.9	128.6
1952....	7.07	4.89	7.00	665			(not available)		

Last year for which data is available.
Source: American Paper and Pulp Assn.

U. S. INDUSTRY GROWTH
(in Millions of Units)

	Pulpwood Consumption	*Woodpulp Production*	*Woodpulp Consumption*	*Waste paper Consumption*
1939	10.8 cords	7.0 tons	8.7 tons	4.4 tons
1950	23.7	14.8	16.5	7.9
1951	26.5	16.5	17.7	9.1
1952	26.4	16.5	17.3	7.9
1953	28.1	17.5	18.7	8.8

	Paper & board Production	*Woodpulp Imports*	*Newsprint Imports*
1939	13.5 tons	2.0 tons	2.6 tons
1950	24.3	2.4	4.9
1951	26.0	2.4	5.0
1952	24.4	1.9	5.0
1953	26.5	2.2	5.0

UNITED STATES—WEEKLY EARNINGS PULP, PAPER, PAPERBOARD AND CONVERTED PRODUCTS

		(For Production Workers Only)		
Year	*No. of Production Workers (In Thousands)*	*Ave. Weekly Earnings*	*Ave. Weekly Hours*	*Ave. Hourly Earnings*
1947	406	$50.21	43.1	$1.16
1948	407	$55.25	42.8	$1.29
1949	389	$55.96	41.0	$1.34
1950	415	$61.14	43.3	$1.41
1951	434	$65.51	43.1	$1.52
1952	422	$68.91	42.8	$1.61
1953	444	$72.90	43.0	$1.69

Source: U.S. Bureau of Labor Statistics

TOTAL PAPER PRODUCTION IN UNITED STATES BY GRADES
(Tons of 2,000 lbs.)

Year	*Newsprint*	*Book*	*Groundwood*	*Fine*	*Wrapping (Coarse)*	*Tissue*	*Sanitary*	*Absorbent*	*Building Paper*	*Other Paper*	*Total All Paper*	*Total Paper and Board*
1899	569,121	304,459	*	131,456	535,252	28,406	*	*	*	*204,697	1,773,482	2,167,593
1924	1,481,425	1,050,000	*	422,000	1,235,000	242,000	*	*	*	*649,560	5,079,985	7,929,985
1940	1,056,304	1,655,423	550,453	735,753	2,500,818	733,894	.....	129,410	682,460	60,120	8,104,635	14,483,709
1945	725,475	1,501,015	636,026	1,000,794	2,403,182	157,083	823,705	88,643	883,259	238,047	8,457,229	17,370,955
1948	875,760	3,153,999		1,140,859	3,026,699	205,095	982,692	107,305	1,321,431	307,690	11,118,530	21,897,301
1949	917,778	2,978,222		1,014,954	2,757,731	186,667	1,008,162	86,113	1,151,374	247,893	10,348,894	20,315,436
1950	1,013,346	3,302,861		1,198,574	3,285,635	225,199	1,148,351	126,690	1,424,633	340,903	12,066,192	24,377,222
1951	1,108,165	3,514,061		1,366,425	3,627,072	270,138	1,215,258	124,412	1,385,691	419,036	13,010,418	26,048,143
1952	1,108,723	3,385,179		1,295,179	3,237,885	209,000	1,148,000	118,000	1,298,799	396,698	12,197,165	24,422,785
1953	1,068,661	3,576,338		1,289,569	3,397,782	231,166	1,277,494	127,644	1,317,253	538,249	12,703,754	26,458,781
3 mos. 1954	280,385	899,056		325,338	873,296	83,868	315,567	31,530	286,320	100,161	3,195,521	6,493,231

* *In 1899 and 1924 groundwood, absorbent, sanitary and building papers are included in "Other Paper." Beginning in 1948, groundwood included with book.*

Source: U. S. Census Bureau, revisions made June 1954.

U. S. PAPER PRODUCTION, IMPORTS, EXPORTS, AND CONSUMPTION

(All Grades—in tons of 2,000 lbs.)

Year	Production	Imports**	Exports**	Consumption	
				Tons	Lbs/Capita
1899.....	2,167,593	.....	.....	2,167,593	57.9
1909.....	4,121,495	55,962	74,764	4,102,693	90.5
1919.....	5,966,076	707,548	420,540	6,253,084	119.1
1929.....	11,140,235	2,533,603	262,383	13,411,455	220.3
1939.....	13,509,642	2,687,484	248,569	15,948,557	243.7
1942.....	17,083,862	3,038,499	341,920	19,780,441	293.8
1945.....	17,370,965	2,753,211	458,689	19,665,487	281.7
1948.....	21,897,301	4,581,811	397,019	26,082,093	355.9
1949.....	20,315,436	4,751,323	372,277	24,694,482	331.0
1950.....	24,377,222	5,007,384	371,546	29,013,060	382.5
1951.....	26,086,115	5,158,010	634,303	30,609,822	396.6
1952.....	24,422,785	5,191,051	592,231	29,013,000	372.5
1953.....	26,458,781	5,231,326	474,730	31,322,952	392.4

** Quantities estimated, wholly or in part, from values given. Imports and exports for various grades include 'Paper Products.'

Source—U. S. Census Bureau; A.P.P.A.

BASIC U. S. PRODUCTION AND CONSUMPTION DATA

	PAPER		WOODPULP			PULPWOOD
	Production (tons)	Consumption (tons)	Production (tons)	Consumption For Paper Only (tons)	Consumption All Purposes (paper, rayon, cellophane, film, plastics, etc.,—tons)	Consumption (cords)
1899.....	2,167,593	2,158,000	1,179,525	1,216,254	.....	1,986,310
1909.....	4,216,708	4,224,000	2,495,523	2,856,593	.....	4,001,607
1919.....	6,190,361	6,479,490	3,517,952	4,113,911	.....	5,477,832
1929.....	11,140,235	13,347,925	4,862,885	6,704,341	.....	7,645,011
1934.....	9,186,266	11,185,682	4,436,128	5,969,633	.....	6,796,659
1938.....	11,327,000	13,488,300	5,933,560	7,975,000	.....	9,193,991
1942.....	17,083,862	19,608,862	10,783,430	11,038,020	.....	17,204,000
1946.....	19,277,667	22,509,788	10,605,225	12,092,093	12,605,033	17,817,560
1948.....	21,897,301	26,082,093	12,872,292	14,374,586	15,034,586	21,189,458
1949.....	20,315,436	24,694,482	12,171,786	13,606,387	14,181,387	19,949,440
1950.....	24,377,222	29,013,060	14,810,860	16,483,201	17,183,201	23,627,000
1951.....	26,086,115	30,609,822	16,494,000	17,704,000	18,480,000	26,576,000
1952.....	24,422,785	29,013,000	16,472,979	17,274,000	18,041,008	26,476,110
1953.....	26,458,781	31,322,952	17,537,295	18,681,713	19,480,837	28,150,003

Source: American Paper and Pulp Assn.; U. S. Census Bureau, revisions made June, 1954

HOW THE STATES RANK IN SALES, TAXES WAGES, ETC.

This table especially prepared by PULP & PAPER shows this data for the pulp and paper industry in the United States by leading states. It is for the year 1951, the last year in which such breakdowns are available.

	INVESTMENT		SALES	TAXES		WAGES	NO. WORKERS
1.	Wis.	$597,306,600	$653,417,581	$88,864,791	1. N. Y.	$72,593,790	22,161
2.	N. Y.	594,911,900	650,797,923	88,508,517	2. Wis.	72,329,028	22,251
3.	Me.	460,373,300	503,620,768	68,492,425	3. Ohio	52,526,010	15,153
4.	Pa.	416,118,000	455,208,125	61,908,306	4. Me.	51,987,248	17,728
5.	Ohio	406,788,000	445,001,665	60,520,227	5. Pa.	50,776,565	15,501
6.	Mich.	400,474,700	438,095,293	59,580,959	6. Mich.	48,494,267	14,919
7.	Mass.	393,104,000	430,032,190	58,484,378	7. Mass.	44,390,922	14,643
8.	La.	375,066,000	410,299,700	55,800,759	8. La.	43,803,729	13,972
9.	Wash.	318,339,600	348,244,422	47,361,241	9. Wash.	42,243,460	11,859
10.	Va.	250,510,500	274,043,456	37,269,911	10. Va.	28,527,830	9,333
11.	N. J.	224,946,300	246,077,755	33,466,575	11. N. J.	27,448,946	8,379
12.	Minn.	224,635,300	245,737,540	33,420,305	12. Minn.	27,201,529	7,692
13.	Fla.	184,889,500	202,258,020	27,507,091	13. Fla.	21,593,132	6,887
14.	N. C.	184,080,900	201,373,460	27,386,791	14. N. C.	20,962,908	6,855
15.	Miss.	156,775,100	171,502,553	23,324,347	15. Miss.	18,309,668	5,840
16.	Ill.	135,844,800	148,606,061	20,210,424	16. Ill.	17,540,796	5,062
17.	Ga.	130,246,800	142,482,184	19,377,576	17. Ore.	16,109,661	4,521
18.	N. H.	127,012,400	138,943,945	18,896,241	18. Ga.	15,211,444	4,851
19.	Ala.	123,000,500	134,555,167	18,299,503	19. Ala.	14,365,153	4,582
20.	Ore.	121,414,400	132,820,069	18,063,530	20. N. H.	14,342,763	4,731

VALUE OF SALES IN U. S. INDUSTRY AND BY WHOLESALERS

Year	By Pulp, Paper, Board and Products Industries Millions of dollars	By Wholesale Distributors of Paper and Its Products Millions of dollars
1939.....	$1,785	$575
1941.....	$2,836	$739
1943.....	$3,389	$833
1945.....	$3,725	$909
1947.....	$5,764	$1,828
1948.....	$6,066	$1,902
1949.....	$5,448	$1,723
1950.....	$6,671	$2,013
1951.....	$8,432	$2,400
1952.....	$8,023	$2,195
1953.....	$8,701	$2,587

Source: U. S. Dept. of Commerce.

PRODUCTION WORKERS AND WAGES IN U. S. PULP, PAPER AND ALLIED PRODUCTS INDUSTRIES

Year	Average number of wage earners (Thousands)	Total dollar wages (Millions)
1899.....	94	36
1909.....	145	68
1919.....	203	208
1929.....	229	281
1939.....	265	310
1949.....	389	1,112
1951.....	420	1,436
1952.....	422	1,514
1953.....	444	1,683

Source: U. S. Bureau of Labor Statistics. Source of data prior to 1939: Bureau of Census.

AVERAGE HOURLY EARNINGS U. S. PULP AND PAPER INDUSTRY VS. U. S. FACTORY AVERAGE

	Pulp and paper Hourly earnings	U. S. Factory Hourly earnings
June 1939....	$ .618	$ .631
June 1941....	.716	.732
June 1943....	.851	.959
June 1945....	.906	1.038
June 1947....	1.232	1.244
Dec. 1947....	1.289	1.245
June 1948....	1.368	1.340
June 1949....	1.410	1.405
June 1950....	1.466	1.453
Dec. 1950....	1.573	1.543
June 1951....	1.599	1.599
Dec. 1951....	1.634	1.636
June 1952....	1.680	1.650
Dec. 1952....	1.740	1.730
June 1953....	1.78	1.76
Dec. 1953....	1.83	1.79

Source: U. S. Bureau of Labor Statistics

CONSUMPTION OF WASTE FIBROUS MATERIALS BY U.S. MILLS

(In Thousands of Tons)

	Waste Paper	Rags	Straw, Flax and Other	Total
1939...	4,366	468	692	5,526
1944...	6,859	428	957	8,245
1945...	6,800	414	929	8,143
1946...	7,278	403	980	8,660
1947...	8,009	462	1,064	9,535
1948...	7,649	425	1,075	9,149
1949...	6,600	382	833	7,815
1950...	7,956	442	998	9,395
1951...	9,070	389	1,055	10,523
1952...	7,881	325	871	9,007
1953...	8,530	325	930	9,785

Source: Pulp and Paper Sec., Forest Products Div., Office of Domestic Commerce and NPA, Pulp, Paper, and Paperboard Div.

U. S.—ALL PAPER OTHER THAN PAPERBOARDS

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Consumption Tons	Consumption Lbs. per Capita
1899..	1,773	....	...	1,773	47
1914..	3,860	349	106	4,103	84
1924..	5,079	1,445	100	6,424	113
1934..	5,173	2,252	114	7,311	116
1941..	9,362	3,086	317	12,131	182
1947..	10,705	4,060	297	14,468	201
1949..	10,349	4,681	226	14,804	198
1950..	12,066	4,922	225	16,763	221
1951..	13,022	5,043	358	17,707	229
1952..	12,194	5,106	388	16,911	217.1
1953..	12,703	5,106	257	17,552	219.9

Source: American Paper & Pulp Assn.

U. S. FINE PAPERS

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Consumed Tons	Consumed Lbs. per Capita
1899..	131	....	...	131	3
1914..	269	....	3	266	5
1924..	422	1.3	4	419	7
1934..	434	.8	10	425	7
1941..	950	2	46	903	14
1947..	1,171	.6	68	1,103	15
1949..	1,015	.6	48	967	13
1950..	1,199	1.4	41	1,159	15
1951..	1,364	1.6	54	1,311	17
1952..	1,295	1.7	47	1,249	16
1953..	1,289	2.4	40	1,242	15

From 1899 to 1940 inclusive, only writing and cover were in fine papers. Beginning 1941, text papers (from book), bristol (from paperboard), and "thin papers" (from tissue) have been added.

Source: American P. & P. Assn., Census Bureau.

U. S. BOOK PAPER

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Consumption Tons	Consumption Lbs. per Capita
1899..	304	....	...	304	8
1914..	795	6	14	788	16
1924..	1,050	14	10	1,053	18
1934..	1,055	4	12	1,047	16
1941..	2,025	28	51	2,002	30
Beginning 1941, text papers allocated to fine papers					
1947..	2,207	74	76	2,206	31
Beginning 1948 Groundwood Papers included with Book Paper. Groundwood was in All Other Paper.					
1949..	2,972	28	41	2,965	40
1950..	3,303	38	27	3,314	44
1951..	3,526	51	52	3,524	46
1952..	3,387	48	66	3,369	43
1953..	3,593	45	26	3,612	45

Source: American P. & P. Assn.

U. S.—ALL OTHER PAPER

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Consumed Tons	Consumed Lbs. per Capita
1899	53	....	....	53	1.4
1914	107	46	37	116	2.3
1924	129	31	40	120	2.1
1934	298	14	22	290	4.6
1943	296	3	15	283	4.2
1947	389	3	38	354	4.9
1949	338	3	35	306	4.1
1950	460	5	14	450	5.9
1951	535	8	19	524	6.8
1952	513	10	24	499	6.4
1953	538	12	27	523	6.6

Source: American P. & P. Assn.—Up to 1948, included groundwood. Since then, groundwood included in book.

U. S. NEWSPRINT SUPPLY AND SOURCES

	In thousands of short tons: from Canada	from U.S.A.	from Europe	TOTAL	Percentages: from Canada	from U.S.A.	from Europe
1915.....	367	1,184	1	1,552	24%	76	0
1925.....	1,315	1,507	133	2,955	45%	51	4
1930.....	2,145	1,272	134	3,551	60%	36	4
1935.....	2,122	911	197	3,230	66%	28	6
1940.....	2,741	998	34	3,773	73%	26	1
1945.....	2,666	707	nil	3,373	79%	21	0
1946.....	3,563	754	13	4,330	82%	18	0
1949.....	4,380	884	255	5,519	79%	16	5
1950.....	4,748	1,002	170	5,920	80%	17	3
1951.....	4,784	1,108	206	6,098	79%	18	3
1952.....	4,855	1,065	190	6,110	79%	18	3
1953.....	4,841	1,018	163	6,022	80%	17	3

Prewar is the average of the five years 1935-39.

Sources: Supply from Canada is the amount of shipments reported by Canadian mills to NAC, from U.S. is the amount of shipments from U.S. mills reported to NSB less exports and from Europe is taken from reports of the U.S. Department of Commerce.

U. S.—TISSUE PAPERS

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Consumed Tons	Consumed Lbs. per Capita
1899..	28	....	...	28	1
1914..	115	....	...	115	2
1924..	242	6	4	244	4
1934..	397	8	7	398	6
1941..	912	.07	25	889	13
1947..	1,088	1	18	1,071	15
1949..	1,195	1.4	21	1,175	16
1950..	1,374	.5	18	1,356	18
1951..	1,485	.2	21	1,465	19
1952..	1,357	.2	17	1,340	17
1953..	1,488	1.9	22	1,467	18.4

Source: Am. P. & P. Assn.

U. S. COARSE PAPERS

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Consumed Tons	Consumed Lbs. per Capita
1899..	535	....	...	535	14
1914..	911	18	7	922	18.8
1924..	1,235	25	18	1,242	22
1934..	1,356	5	32	1,329	21
1943..	2,262	1	49	2,213	32
1947..	2,903	22	51	2,874	40
1949..	2,758	6	56	2,708	36
1950..	3,286	11	73	3,324	43
1951..	3,597	11	130	3,478	45
1952..	3,235	10	121	3,124	40
1953..	3,397	35	86	3,371	42

Source: American P. & P. Assn; Census Bureau.

U. S.—NEWSPRINT

(In Thousands of Tons)

	Produced	Imp'ts	Exp'ts	Consumption Tons	Consumption Lbs. per Capita
1899..	569	....	...	569	15
1914..	1,313	278	44	1,547	32
1924..	1,481	1,357	17	2,821	50
1934..	989	2,209	23	3,175	50
1941..	1,043	2,982	70	3,956	60
1947..	833	3,957	28	4,762	66
1949..	918	4,640	39	5,519	74
1950..	1,013	4,863	44	5,832	77
1951..	1,106	4,968	71	6,004	78
1952..	1,106	5,033	105	6,034	78
1953..	1,068	5,004	47	6,086	76

Source: Census Bureau, A.P.P.A.

NEWSPRINT PAPER CONSUMPTION —U. S.

	Population	Newsprint Tons	Paper Used Per Capita Lbs.
1924..	113,090,000	2,737,000	48.4
1930..	123,091,000	3,563,000	57.9
1935..	127,521,000	3,300,000	51.7
1940..	132,817,000	3,730,000	56.2
1944..	138,101,000	3,250,000	47.1
1945..	139,621,000	3,480,000	49.8
1946..	141,229,000	4,296,000	60.8
1947..	143,382,000	4,753,000	66.3
1948..	146,116,000	5,141,000	70.4
1949..	149,215,000	5,529,000	74.1
1950..	151,376,000	5,937,000	78.4
1951..	153,396,000	5,975,000	77.9
1952..	155,300,000	5,988,000	77.2
1953..	160,873,000	6,086,000	76.1

U. S. PAPERBOARD STATISTICS

(In Tons of 2,000 lbs.)

Year—	Production	Imports	Exports	Consumption	Per Capita Consumption Lbs.
1899.....	394,111	....	....	394,111	10.5
1909.....	883,088	....	....	883,088	19.5
1919.....	1,867,064	44,461	61,890	1,849,635	35.2
1929.....	4,451,187	42,351	94,374	4,399,164	72.4
1939.....	6,025,494	28,728	113,571	5,940,651	90.8
1945.....	8,913,736	51,189	155,020	8,809,905	126.2
1948.....	10,775,454	75,072	170,837	10,679,689	145.7
1949.....	9,966,542	70,309	146,026	9,890,825	132.6
1950.....	12,311,030	85,850	146,168	12,250,712	161.5
1951.....	13,063,817	114,384	276,117	12,902,292	167.2
1952.....	12,219,112	83,759	172,535	12,101,532	155.4
1953.....	13,862,602	124,947	217,359	13,770,190	172.5

Source: American Paper and Pulp Assn.

ANNUAL REVIEW OF PULP & PAPER MACHINERY

for the making of better pulp and paper and more of it per day at lower cost per ton



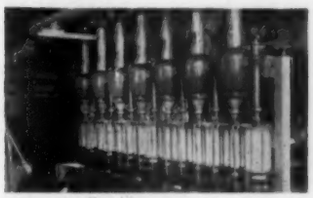
BIRD SCREENS — In 1954, papermakers who offer the cleanest paper are going to have an important competitive advantage. That means big, modern Bird Screens — still the most effective and economical means of removing dirt and shives from paper stock.



BIRD JONSSON SCREENS are now rated the most successful, high capacity perforate plate screens for low cost knotting and tailing of sulphite, kraft and groundwood, for use ahead of brown stock washers, for straw stocks, waste paper and stocks from refiners, defibrators and masonite guns.



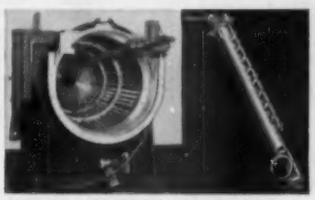
BIRD VIBROTOR SCREENS are the 1954 answer to the demand for big capacity screening of high consistency stocks through slotted plates at low screening cost. It is ideal for hard kraft, double dilution systems, semi-chemical pulps, deinked stocks and many paper stocks previously considered unscreenable.



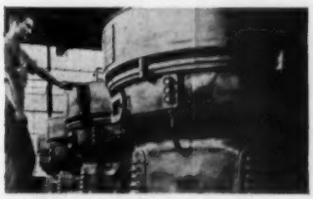
DIRTECS are 1954 Model dirt removal units employing the pressure drop principle. With the new "King Size", they are ready to handle all varieties and volumes of pulp, paper and board stock. They get the dirt and it can never get back into the pulp or paper.



BIRD SAVE-ALLS meet today's demand for conservation of high cost fibres, recovering stock from white water at lowest cost per ton. They save not only stock but water, time, labor and money. They quickly pay for themselves.



BIRD SHOWER PIPES provide the utmost scouring efficiency with the least volume of water. The Oscillating Shower is widely used to keep Bird Screen slots continuously clean and open with a small fraction of water otherwise required. Self-Cleaning Showers employ fresh water or white water equally effectively.



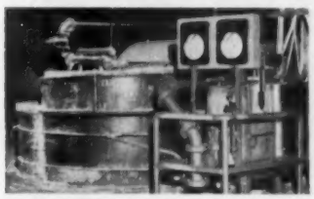
CENTRIFINERS are the standard, modern means of purifying those paper stocks in which there can be no dirt specks, metal or rubber particles. Centrifining is a valuable sales as well as production advantage.



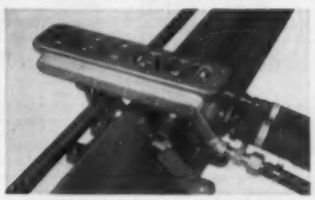
BIRD LIME MUD FILTERS are helping the producers of alkaline pulps to save money on their lime recovery process. They deliver a drier, more uniform feed to the kilns, thus saving fuel.



VICKERY DOCTORS meet 1954 engineering standards. Continuously effective roll performance and minimum roll maintenance expense is an assured result of their application. Motor or hydraulic oscillation is available whenever desired.



BIRD CONSISTENCY REGULATORS meet 1954 standards of automatic control. They may be operated mechanically or pneumatically, the latter permitting remote control and a continuous chart record of both incoming and outgoing consistencies. Thick stocks are accurately regulated, using a screw indicator.



VICKERY FELT CONDITIONERS keep pace with the big, high speed paper machines of the day. They provide the continuous, thorough conditioning action that keeps press felts doing their best work without midweek shutdowns. Maximum water removal at the presses effects big savings.



BIRD CORLOCS are 1954 model, lightweight, safety locking arbors that obsolete the old style, heavy, wedge driven, butt end busting, core destroying arbors. They are recommended for unwind, surface rewind and rewinding operations with continuous or sectional cores.

For bulletins, recommendations and estimates on any or all of the above items, get in touch with

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASSACHUSETTS

BIRD MACHINERY

UNITED STATES PAPERBOARD PRODUCTION

(In Tons of 2,000 lbs.)

	Container Board	Folding Boxboard	Setup Boxboard	Building Boards	Other Boards	Total Paperboard
1940.....	3,434,834	1,416,452	898,549	179,443	449,796	6,379,074
1945.....	4,131,107	2,092,344	721,087	894,830	1,074,368	8,913,736
1948.....	5,078,929	2,199,608	596,190	1,270,348	1,629,605	10,775,454
1949.....	4,681,054	2,084,415	617,249	838,729	1,734,757	9,966,542
1950.....	5,646,433	2,368,010	641,345	1,258,620	2,292,071	12,311,030
1951.....	6,346,966	2,428,794	700,762	1,314,850	2,272,445	13,063,817
1952.....	5,770,000	2,193,000	687,000	1,305,000	2,262,000	12,220,000
1953.....	6,740,364	2,427,396	755,265	1,400,558	2,539,019	13,862,602

Source: American Paper and Pulp Assn.

U. S. BOARD PRODUCTION

(U. S. Department of Commerce—in Thousands of Tons)

	Paperboard*	Wet Machine Board**	Building Board
1946	8,396	138	956
1949	8,992	125	839
1950	10,803	144	1,259
1951	11,605	144	1,315
1952	8,719	137	1,305
1953	10,010	155	1,401

*Container boards, box boards, cardboard and other.

**Shoe board, binder board and other.

U. S. BUILDING BOARD (In Sq. Ft.)

Year	Production—Square Feet
1939	1,258,000,000
1943	2,645,000,000
1948	3,344,000,000
1949	2,134,225,000
1950	3,324,578,000
1951	3,184,302,000
1952	3,331,789,814
1953	3,733,333,000

Source: Dept. of Commerce. 1,000 sq. ft. of ½-inch board is equivalent to 750 lbs. The government statistics for "total building boards—hardboard in ½-inch equivalent, laminated fiberboard in 3/16-inch equivalent, and structural insulation in ½-inch equivalent."

U. S. BUILDING BOARDS PRODUCTION

Year	Wallboard (Tons)	Insulating board (Tons)	Total Tons
1941	254,477	362,033	616,510
1948	364,562	905,786	1,270,348
1949	216,530	622,199	839,000
1950	381,201	838,367	1,220,000
1951	343,552	925,744	1,269,296
1952	425,081	880,374	1,305,455
1953	479,528	921,030	1,400,558

Source: U. S. Dept. of Commerce (Pulp and Paper Section).

U. S. PULP IMPORTS

Year	Chemical Tons	Value	Groundwood Tons	Value
1925	1,332,522	$ 73,317,337	331,092	$ 8,517,116
1930	1,530,985	$ 73,962,977	299,256	$ 7,146,290
1936	2,049,722	$ 78,785,004	227,778	$ 4,051,224
1940	1,053,057	$ 55,474,094	170,909	$ 4,712,649
1945	1,526,647	$106,858,690	227,418	$ 8,936,177
1947	2,016,153	$238,126,318	290,514	$18,032,673
1949	1,554,320	$168,910,921	208,782	$12,099,373
1950	2,098,667	$224,358,923	286,308	$15,802,852
1951	2,046,311	$324,280,192	321,178	$26,414,059
1952	1,693,726	$252,803,232	242,006	$18,242,571
1953	1,894,216	$244,670,888	263,630	$18,445,508

Source: U. S. Pulp Producers Assn. and U. S. Dept. of Commerce.

U. S. WOODPULP CAPACITIES

(Projected to 1956 by U. S. Pulp Producers Assn.)

Regions	Annual Capacity Woodpulp—in tons 1954	1956
New England	1,908,926	2,017,676
Middle Atlantic	1,338,829	1,357,725
Lake States	2,472,861	2,487,016
Pacific Coast	3,875,636	4,041,021
South	11,664,182	12,170,717
TOTAL U.S.	21,260,434	22,074,155
Grades	1954	1956
Dissolving	922,728	1,122,403
Sulfite (Paper)	2,744,410	2,715,606
Bleach. Capacity .	2,160,418	2,138,694
Sulfate (Paper)	10,934,730	11,376,720
Bleach. Capacity .	3,434,915	3,655,695
Soda	494,670	462,420
Semi-Chemical	1,487,083	1,568,676
Groundwood	3,158,729	3,309,351
Bleach. Capacity .	685,296	697,871
Other Non-Chem ..	1,441,881	1,441,881
Screenings	76,203	77,098
Other Grades	3,005,167	3,087,655

U. S. WOODPULP EXPORTS

	Tons	Value
1930.....	48,426	$ 2,070,553
1935.....	171,710	$ 8,632,971
1939.....	139,504	$ 6,493,140
1940.....	480,938	$29,736,737
1943.....	300,700	$20,288,879
1946.....	39,361	$ 3,645,963
1949.....	122,133	$14,082,575
1950.....	95,693	$12,056,311
1951.....	182,861	$39,112,079
1952.....	198,685	$32,215,417
1953.....	161,687	$22,793,371

Source: U. S. Department of Commerce and U. S. Pulp Producers Assn.

GRADES	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
CONTAINERBOARDS										
LINERS										
Jute	1,127,500	1,145,300	1,219,100	1,308,800	1,122,700	770,700	921,800	1,087,600	772,800	820,600
Cylinder Kraft	139,300	137,500	150,800	232,400	219,700	195,500	209,600	263,900	183,600	191,600
Fourdrinier Kraft	1,340,400	1,308,000	1,311,900	1,396,400	1,909,200	2,037,500	2,582,900	2,766,400	2,734,900	3,201,500
Total Kraft	1,479,700	1,445,500	1,502,700	1,628,800	2,128,900	2,233,400	2,792,500	2,964,300	2,917,900	3,392,500
TOTAL LINERS	2,598,200	2,590,800	2,721,800	3,137,600	3,251,600	3,004,100	3,714,300	4,051,900	3,690,700	4,213,100
CORRUGATING MATERIALS										
Semichemical *	331,100	360,800	398,600	565,800	486,400	535,600	720,600	841,100	846,100	1,042,200
Kraft	120,400	154,600	174,300	138,400	134,300	225,000	227,700	199,900	213,100	216,900
Strawboard *	389,000	376,800	385,400	407,400	402,000	312,600	350,900	343,400	275,700	275,700
Other *	249,400	279,300	304,800	368,700	364,600	276,000	373,600	425,900	283,100	367,900
TOTAL CORRUGATING MATERIALS	1,089,900	1,111,500	1,263,100	1,429,300	1,387,300	1,349,200	1,672,800	1,810,300	1,628,000	1,902,700
CHIP & FILLER BOARDS										
Liner Chip	96,800	83,900	114,200	81,600	87,300	76,600	75,700	79,500	73,500	90,500
Filler Board	338,200	314,500	314,600	248,900	234,100	199,200	237,600	276,800	254,300	243,000
TOTAL CHIP & FILLER BOARDS	435,000	397,500	328,800	330,500	321,400	269,800	313,500	356,300	327,800	333,500
TOTAL CONTAINERBOARDS #	4,123,100	4,099,800	4,313,700	4,888,400	4,960,300	4,623,100	5,700,600	6,218,500	5,646,500	6,449,300
BOXBOARDS										
Folding Boxboard **	1,660,700	1,722,200	2,109,000	2,096,500	2,066,400	2,010,100	2,357,900	2,341,400	2,185,400	2,380,900
Set-up Boxboard	543,100	511,600	474,100	601,500	639,500	662,500	729,800	681,900	633,400	676,100
Special Food Board **	396,500	400,000	445,600	460,800	443,400	515,600	690,400	810,700	875,200	970,400
All Other Paperboard **	1,248,500	1,204,600	1,150,000	1,313,700	1,478,600	1,398,400	1,655,900	1,834,000	1,749,100	2,037,800
TOTAL BOXBOARDS	3,838,800	3,836,400	4,178,700	4,472,500	4,627,900	4,586,600	5,433,900	5,668,000	5,443,100	6,065,200
SUMMARY										
Kraft Paperboard	1,916,000	1,976,200	2,032,600	2,419,500	2,616,500	3,067,300	3,766,700	4,109,300	4,177,400	4,810,100
All Other Paperboard	6,045,200	5,962,000	6,459,800	6,941,400	6,771,700	6,142,400	7,367,800	7,777,200	6,912,200	7,704,400
TOTAL PAPERBOARD	7,961,200	7,938,200	8,492,400	9,360,900	9,388,200	9,209,700	11,134,500	11,886,500	11,089,600	12,514,500
# Excludes Estimated Imports	9,200	9,300	40,000	10,000	40,000	33,000	30,000	40,000	32,500	56,000

* 1944 - 1945 Estimated Analysis

** 1944 - 1949 Special Food Board figures obtained from U. S. Department of Commerce. This tonnage formerly included in Folding and All Other Totals.

Source: NATIONAL PAPERBOARD ASSOCIATION

UNITED STATES WOODPULP PRODUCTION—1952 vs. 1953

	TOTAL WOODPULP, ALL GRADES			MARKET WOODPULP, ALL GRADES		
	1952	1953	% Change	1952	1953	% Change
Capacity	18,771,390	19,611,342	+4			
Production	16,472,979	17,537,295	+6	1,849,328	1,783,921	−4
Imports	1,941,359	2,156,285	+11	1,400,634	1,576,455	+13
Canada				1,040,489	1,033,854	−1
Europe				360,145	542,601	+51
Exports	211,924	161,687	−24	211,924	161,687	−24
New Supply	18,202,414	19,519,527	+7	3,038,038	3,198,689	+5
Consumption	18,074,030	19,594,213	+8	2,942,415	3,284,843	+12
In paper & board	17,286,030	18,681,713	+8	2,251,915	2,500,543	+11
In non-paper	788,000	912,500	+16	690,500	784,300	+14

Total imports are slightly larger than market pulp imports because they include imports to paper mills from their own mills in Canada and for their own use.

TOTAL UNITED STATES PRODUCTION OF WOODPULP

(Tons of 2000 pounds)

Year	Total	Unbleached Sulfite	Bleached Sulfite	Total Sulfate (1)	Groundwood	Soda	All Other
1925.	3,962,217	790,510	612,576	409,768	1,612,019	472,647	64,697
1935.	4,925,669	634,947	944,620	1,467,749	1,355,819	417,724	104,810
1940.	8,959,559	995,700	1,612,089	3,747,992	1,632,727	532,387	438,664
1942.	10,783,430	1,213,066	1,717,206	4,738,266	1,869,862	462,065	782,965
1944.	10,108,443	862,928	1,523,221	4,548,810	1,769,287	412,755	991,442
1946.	10,606,527	784,391	1,692,077	4,588,016	1,951,456	476,211	1,114,376
1948.	12,872,292	901,814	1,909,402	6,013,696	2,175,107	509,864	1,362,409
1949.	12,171,786	707,263	1,829,021	5,977,281	1,960,496	492,194	1,205,531
1950.	14,807,575	740,895	2,107,541*	7,501,429	2,215,883	522,221	1,719,606
1951.	16,494,386	754,916	2,378,692*	8,576,298	2,476,635	446,483	1,861,362
1952.	16,472,979	673,453	1,691,523	8,568,704	2,379,740	425,415	2,028,111
1953.	17,537,295	593,958	1,728,648	9,444,816	2,342,929	427,546	2,999,398

Source: U. S. Bureau of the Census revised 1953 figures issued June 1954.

Note: Through 1939, "exploded" wood pulp is included in Groundwood and thereafter in "All Other." 1933 through 1936 data on Soda are estimated from United States Bureau of the Census combined data for Soda and Semichemical pulp. Bleached and Semi-Bleached Sulfate totaled 7,055,609 tons in 1953; 6,485,860 in 1952. Semi-chemical Pulp totaled 1,028,721 tons in 1953; 828,917 in 1952.

** Includes dissolving grades of bleached sulfate.*
(1) Total sulfate lists total for paper grades only.

U.S. IMPORTS OF NORTH AMERICAN WOODPULP BY GRADES

(In Short Tons)

Includes: Canada, Newfoundland, Labrador, Mexico

	Bleached Sulfite			Sulfate		Groundwood			
	Paper Grades	Non-Paper Grades	Unbl'ch'd Sulfite	Bleached	Unbleached	Bleached	Unbleached	Soda	Total
1946	195,112	189,775	411,512	56,213	137,472	———	220,823	19,740	1,245,131
1949	241,280	149,801	256,993	323,212	117,917	538	188,620	27,315	1,313,325
1950	288,014	229,092	364,531	366,047	183,238	15,548	228,627	33,947	1,717,035
1951	258,571	225,836	441,235	450,076	176,837	17,054	264,996	33,373	1,881,119
1952	215,296	220,010	306,929	448,467	135,768	31,622	183,089	28,071	1,581,214
1953	234,079	254,232	254,364	470,502	154,580	57,298	145,368	34,883	1,613,684

Source: Department of Commerce

TYPICAL PULP PRICES IN THE UNITED STATES

(Prepared especially by PULP & PAPER for past six years)

Before World War II—Under OPA Regulation (1944 and 1946 allowed increases are shown)—and in recent years. Specially prepared authentic table for this WORLD REVIEW.

Swedish and Norwegian prices are N. Y. *Dock* prices; U. S. and Canadian are *"Delivered"* and Maximum Freight Allowances are noted.

	Domestic Bleached Kraft	Canadian Bleached Kraft	Swedish Unbl'ched Kraft	Swedish Bleached Sulfite	Domestic Bleached Sulfite	Canadian Bleached Sulfite	Norway Bleached Sulfite	Canada Unbl'ched Sulfite	Swedish Unbl'ched Sulfite
1939	—	—	$28	$43	$50	—	—	—	$36
1944	—	—	$69	$82	$86	$86	—	$75	$70
1946	—	—	$79	$91	$94	$94	—	$82	$79
Apr. 1949	$136	$136	$112	$132	$126	$130	$125	$118	$122
June 1951	$135 to $200 (1)	$195 (2)	$225	$250 to $290	$135 to $165	$160 (2) to $175 (2)	$250	—	$225 to $265
June 1952	$142 (3) to $167 (4)	$190 to $190 (1)	$145 to $150	$175 to $182.50	$140 (3)	$160 to $165	$175 to $180	$150	$155 to $160
May 1953	$140 to $147.50	$145 to $155	$100 to $125	$130 to $135	$140	$140 to $145	$140 to $145	$130 to $135	$110 to $125
May 1954	$140 to $147.50	$145 to $150	$105 to $110	$135 to $140	$140	$140	$135 to $142.50	$120	$115 to $122

Maximum Freight Allowances:
(1) $12.50 (2) $7.50 (3) $18.50 (4) $15.00.

U. S. PRICES OF DISSOLVING WOOD PULP

Dollars Per Short Ton

		Regular Tenacity Viscose	High Tenacity Viscose	Acetate & Cupra
	1929	$ 97.00		
	1933	70.00		
JAN.	1938	97.50		100.00
JAN.	1946	107.50	112.50	117.50
JAN.	1947	132.00	138.50	148.00
MAR.	1948	157.00	167.00	182.00
JUN.	1949	159.00	168.00	178.00
OCT.	1949	150.00	161.00	171.00
AUG.	1950	159.00	170.00	185.00
JAN.	1951	185.00	195.00	225.00
MAY	1952	185.00	195.00	225.00
MAY	1953	185.00	195.00	225.00
MAY	1954	185.00	195.00	225.00

LEADING WOODPULP STATES

(in short tons)

State	1952*
1st Washington	2,068,000
2nd Florida	1,486,000
3rd Louisiana	1,379,000
4th Maine	1,304,000
5th Georgia	1,227,000
6th Wisconsin	972,000

* Latest available by U. S. Pulp Producers Assn.

U. S. PRICES OF COTTON LINTERS PULP

Dollars Per Short Ton

	Annual Average	Low	High
1948	225.00	187.00	260.00
1949	172.00	160.00	187.00
1950	337.00	187.00	546.00
1951	459.00	316.00	554.00
1952	288.00	223.00	316.00
1953	235.60	223.00	250.00
1954*	210.00	210.00	210.00

* 5 months.
U. S. Dept. Agric.—Regional Research Lab., New Orleans, La.

U. S. PACIFIC COAST STATES PULP PRODUCTION

Tons of 2,000 lbs. (except defibrated, exploded, and similar pulps)

1923	299,596	1941	1,994,150
1926	378,005	1943	1,521,531
1929	780,494	1945	1,591,789
1931	817,548	1947	2,005,089
1932	607,662	1949	2,078,526
1933	773,102	1950	2,417,998
1935	1,011,421	1951	2,768,848
1937	1,523,191	1952	2,766,277
1939	1,384,147	1953	2,940,147

Source: U. S. Pulp Producers Assn., Inc.

WASHINGTON STATE
Payroll Data of Pulp and Paper Industry

Year	Payroll	Man-Hours	Increase or Dec. of Payroll Compared Previous Yr.
1927	$4,855,526	7,710,848	.....
1939	$11,919,822	14,197,262	.....
1945	$21,995,846	17,491,211	.....
1949	$36,853,575	19,597,454	.....
1950	$41,015,000	21,205,358	+11.29%
1951	$45,332,131	22,149,232	+10.5%
1952	$50,232,987	22,552,500	+11%
1953	$50,740,710	22,083,491	+1%

Source: Department of Labor and Industries, State of Washington.

REGIONAL ORIGIN OF SALES OF DOMESTIC MARKET PULP IN U. S.

All Grades Except Defibrated—Tons of 2,000 lbs.—Showing imported and domestic supply for consumers

Year	Pacific	South	New England	Lake	Mid-Atlantic	Total U.S.	Mkt. Pulp Imports	Total Supply
1947 (Tons)	727,135	227,770	218,451	96,705	69,732	1,339,793	1,883,157	3,222,950
1947 (Percent)	22.6%	7.0%	6.7%	3.0%	2.1%	41.57%	58.43%	100%
1948 (Tons)	801,842	230,744	188,527	95,559	60,920	1,377,592	1,739,120	3,116,712
1948 (Percent)	25.2%	7.2%	5.84%	2.96%	1.08%	42.28%	57.72%	100%
1949 (Tons)	751,267	184,482	165,815	59,801	45,526	1,206,891	1,304,326	2,511,217
1949 (Percent)	29.9%	7.4%	6.6%	2.4%	1.8%	48.1%	51.9%	100%
1950 (Tons)	888,957	312,490	217,496	79,665	60,201	1,558,809	1,910,917	3,469,726
1950 (Percent)	25.6%	9.0%	6.3%	2.3%	1.7%	44.9%	55.1%	100%
1951 (Tons)	922,006	408,417	212,446	84,547	72,912	1,700,328	1,831,718	3,532,046
1951 (Percent)	26.1%	11.5%	6%	2.4%	2.1%	48.1%	51.9%	100%
1952 (Tons)	856,855	434,772	203,910	69,588	43,412	1,608,537	1,397,126	3,005,663
1952 (Percent)	28.5%	14.5%	6.8%	2.3%	1.4%	53.5%	46.5%	100%

Source: U. S. Pulp Producers Assn., Inc.

U. S. IMPORTS OF EUROPEAN WOODPULP BY GRADES

(Short Tons)

	Bleached Sulfite		Sulfate				
	Paper Grades	Non-Paper Grades	Unbl'ch'd Sulfite	Bleached Sulfate	Unbl'ch'd Sulfate	Groundwood	Total*
1946	27,541	12,417	207,059	23,484	260,434	29,399	560,334
1949	90,008	4,145	135,229	68,397	130,897	19,065	449,218
1950	115,020	8,262	163,975	86,548	257,160	34,618	668,146
1951	90,991	3,923	122,639	71,484	158,736	34,746	484,201
1952	59,774	3,317	125,623	70,568	72,103	27,529	359,138
1953	99,459	1,291	126,075	119,722	138,013	56,669	543,903

Source: Department of Commerce

* *Includes screenings and soda.*

U. S. WOODPULP IMPORTS FROM EUROPE

(In Short Tons)

	Sweden	Finland	Norway	Austria	Czech.	France	Ger.	Switz.	Total**
1945*	672,261	0	0	0	0	0	0	0	672,261
1946	445,114	115,220	0	0	0	0	0	0	560,334
1947	555,215	223,973	9,577	0	0	0	0	0	793,693
1948	384,576	175,900	13,218	1,696	0	0	0	0	575,390
1949	265,621	148,903	29,208	4,459	1,027	0	0	0	449,218
1950	398,814	205,651	28,958	21,005	2,597	115	977	89	668,146
1951	257,061	182,616	36,365	3,225	512	106	2,812	89	482,801
1952	189,613	145,630	21,168	2,430	0	124	169	0	359,138
1953	334,813	160,216	36,777	9,996	0	211	588	0	542,601

* The 1945 figure is for only 6 mos., when shipping reopened after the war.

** Includes 15 tons from Denmark in 1951; 167 tons from Italy in 1950; 4,928 tons from Russia in 1947 and 9,773 tons from Russia in 1950; 4 tons from Australia in 1952.

PULPWOOD PRODUCTION STATISTICS FOR SOUTHERN STATES (In Cords)

Especially gathered and prepared by PULP & PAPER

	Virginia	North Carolina	South Carolina	Georgia	Florida	Southeast Total
1946	971,000	709,000	1,002,000	1,143,000	865,000	4,711,000
1947	1,025,400	765,200	948,400	1,215,200	881,700	4,835,900
1948	1,306,500	926,200	1,108,500	1,770,600	1,221,200	6,330,000
1949	895,200	802,100	1,012,200	1,790,500	1,036,100	5,536,100
1950	1,044,147	1,024,005	1,182,413	2,221,279	1,384,694	6,856,538
1951	1,326,333	1,304,540	1,251,045	2,370,143	1,490,325	7,742,386
1952	1,069,129	1,332,303	1,275,698	2,513,272	1,583,341	7,773,743
1953	1,267,347	1,528,929	1,446,157	2,879,168	1,674,864	8,796,465

	Oklahoma	Texas	Arkansas	Louisiana	Southwest Total
1946	13,300	616,000	577,000	787,000	1,993,000
1947	29,900	711,100	596,600	870,300	2,207,900
1948	34,300	823,600	616,700	953,800	2,428,400
1949	37,900	790,900	561,300	759,800	2,149,900
1950	38,831	922,304	603,682	883,306	2,448,123
1951	44,618	1,158,371	613,792	1,110,961	2,927,742
1952	34,870	1,159,918	619,664	1,234,745	3,049,197
1953	41,028	1,210,704	780,982	1,375,500	3,408,214

	Tennessee	Mississippi	Alabama	Mid-South Total	All-South Total
1946	135,000	1,238,000	756,000	2,130,000	8,844,000
1947	141,300	1,279,100	777,700	2,198,100	9,241,900
1948	181,700	1,433,900	981,900	2,597,500	11,358,900
1949	158,100	1,167,700	911,300	2,237,100	9,923,100
1950	143,958	1,665,863	1,321,204	3,131,025	12,435,686
1951	191,415	1,793,376	1,406,207	3,390,998	14,061,126
1952	268,438	1,861,388	1,608,609	3,738,435	14,561,375
1953	234,162	1,922,975	1,765,140	3,922,277	16,126,956

Note—Because of rounding, state figures may not add up to totals.

* *Latest years estimates gathered by PULP & PAPER. All other figures from Southern and Southeast Forest Experiment Stations of U. S. Forest Service.*

PULPWOOD STATISTICS

TOTAL FOR U. S.

Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Receipts: Domestic	Receipts: Imports	Receipts: Total	Consum.	Yr. End Invent.
1941	14,177	2,281	16,458	16,580	3,729
1943	13,581	1,712	15,293	15,645	2,846
1945	15,254	1,729	16,983	16,912	2,627
1947	18,529	2,084	20,613	19,714	4,563
1949	17,547	1,706	19,252	19,916	4,877
1950	20,712	1,834	22,546	23,627	3,615
1951	25,128	2,650	27,778	26,522	5,072
1952	25,045	2,315	27,358	26,462	5,949
1953	26,339	1,548	27,887	28,150	5,650

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

APPALACHIAN AREA—PULPWOOD

Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Receipts: Domestic	Receipts: Imports	Receipts: Total	Consum.	Yr. End Invent.
1941	1,378	34	1,412	1,420	439
1943	1,302	2	1,304	1,442	280
1945	1,365	23	1,388	1,444	206
1947	1,610	23	1,633	1,685	372
1949	1,548	—	1,548	1,614	335
1950	1,705	—	1,705	1,796	249
1951	1,960	—	1,960	1,859	367
1952	1,562	—	1,562	1,673	323
1953	1,870	—	1,870	1,822	370

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

LAKE STATES—PULPWOOD

Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Receipts: Domestic	Receipts: Imports	Receipts: Total	Consum.	Yr. End Invent.
1941	1,561	680	2,241	2,398	995
1943	1,409	560	1,969	2,325	962
1945	1,954	502	2,456	2,544	986
1947	2,154	746	2,900	2,725	1,486
1949	1,609	552	2,160	9,251	670
1950	1,985	487	2,472	2,825	986
1951	2,622	803	3,425	3,039	1,380
1952	2,445	739	3,182	2,909	1,701
1953	2,239	523	2,762	3,036	1,418

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

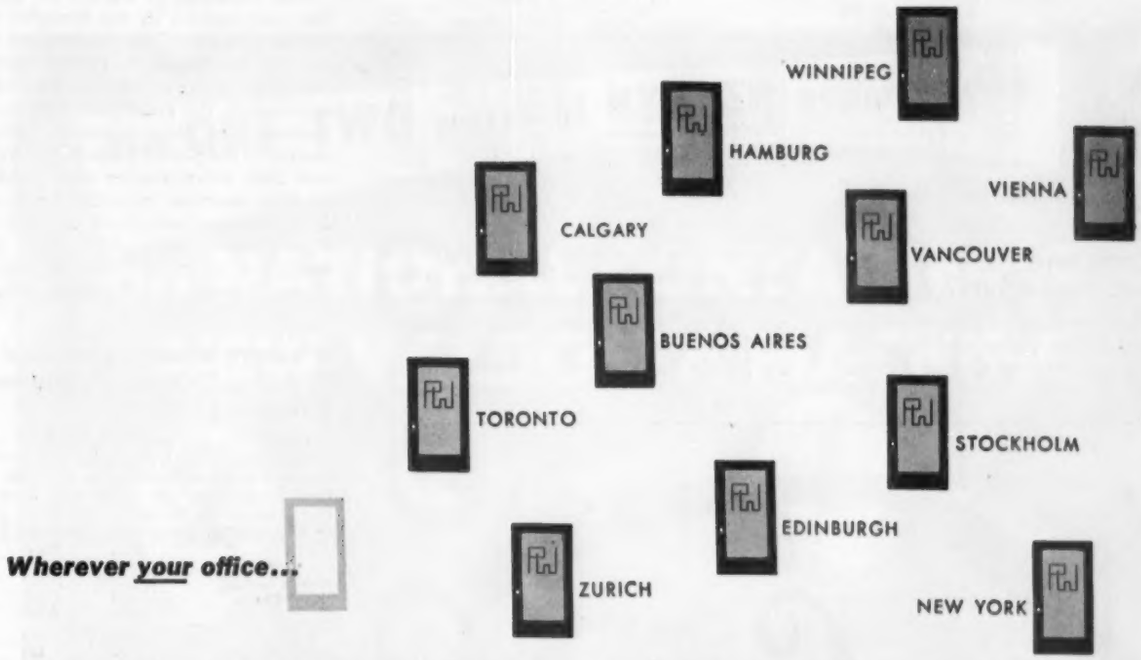
NORTHEAST STATES—PULPWOOD

Receipts—Consumption—Inventories

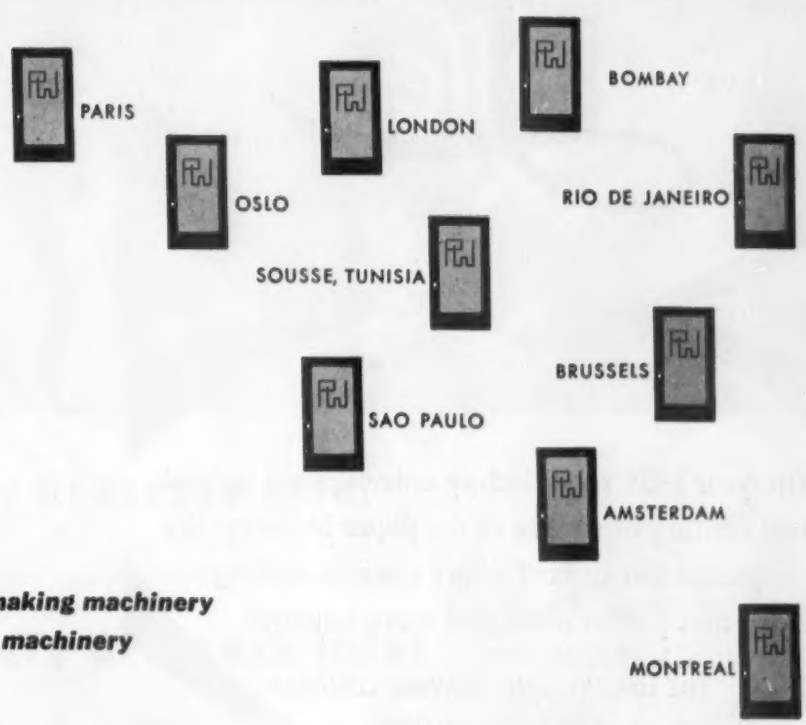
(In Thousands of Cords)

Yr.	Receipts: Domestic	Receipts: Imports	Receipts: Total	Consum.	Yr. End Invent.
1941	2,252	1,235	3,486	3,515	1,218
1943	1,906	1,047	2,954	3,265	820
1945	2,311	1,078	3,389	3,245	869
1947	2,970	1,140	4,110	3,740	1,440
1949	2,321	1,004	3,325	3,395	1,526
1950	2,235	1,060	3,295	3,701	1,051
1951	3,137	1,586	4,723	4,280	1,483
1952	3,319	1,422	4,740	4,051	1,937
1953	2,807	1,025	3,832	3,848	1,665

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.



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U.S. PACIFIC COAST—PULPWOOD

Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Receipts—Domestic	Receipts—Imports	Receipts—Total	Consum.	Yr. End Invent.
1941	2,585	332	2,918	3,019	782
1943	2,458	103	2,561	2,271	491
1945	2,470	126	2,596	2,472	420
1947	3,581	156	3,734	3,171	974
1949	3,015	148	3,162	3,199	1,031
1950	3,244	287	3,531	3,822	772
1951	4,565	261	4,826	4,490	1,070
1952	4,339	155	4,494	4,499	1,133
1953	4,463	—	4,463	4,692	1,108

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

U.S. SOUTH—PULPWOOD

Receipts—Consumption—Inventories

(In Thousands of Cords)

Yr.	Receipts—Domestic	Receipts—Imports	Receipts—Total	Consum.	Yr. End Invent.
1941	6,400	..	6,400	6,227	334
1943	6,505	..	6,505	6,342	293
1945	7,153	..	7,153	7,208	145
1947	8,227	..	8,227	8,395	291
1949	9,060	..	9,060	9,255	670
1950	11,543	..	11,543	11,480	753
1951	12,844	..	12,844	12,854	772
1952	13,381	..	13,381	13,330	856
1953	14,959	..	14,959	14,752	1,089

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

Pacific Coast and Rocky Mts. Wood Survey

Periodic pulpwood surveys in Washington, Oregon, North Idaho and Montana have long been features of this Review Number. They deal with the leading pulpwood producing region for its size in the entire continent, and therefore are significant, and are prepared for PULP & PAPER by the Forest Economics divisions of the Pacific Northwest and Northern Rocky Mountain Forest and Range Experiment Stations of the U. S. Forest Service, Portland, Ore., and Missoula, Mont.

The estimates of the cu. ft. volume of the pulp species in the Douglas-fir subregion of western Washington and western Oregon are based on Forest Survey inventories of the forest resources of the 38 counties in the subregion. The initial inventories of these counties were conducted in the period 1930-34. Between 1937 and 1952 reinventories were made of 35 of these counties; in addition a second reinventory has been made of the following 9 counties: Clatsop and Coos in Oregon, and Clark, Cowlitz, Grays Harbor, Lewis, Mason, Pacific, and Wahkiakum in Wash.

Western Washington and Western Oregon Pulpwood Species, 1953

Volume in millions of cubic feet[1] of pulpwood, other than Douglas-fir in western Oregon and western Washington available for cutting[2] by species.[3] (In addition to these species there are about 60 billion cu. ft. of Douglas-fir available in Douglas-fir subregion.)

Species	West. Oregon	West. Wash.	Total
Western hemlock	4,834	15,071	19,905
Sitka spruce	480	973	1,453
Balsam firs[4]	3,940	6,347	10,287
Mountain hemlock—Englemann spruce	610	345	955
Black cottonwood	32	133	165
Total	9,896	22,869	32,765

[1] Includes all trees 4 inches and larger, diameter breast height.

[2] Excludes timber reserved from cutting in municipal, State, and Federal ownership.

[3] Compiled by Pacific Northwest Forest and Range Experiment Station from Forest Survey data adjusted for cutting depletion and growth to 1953.

[4] Includes Pacific silver fir, grand fir, noble fir, Shasta red fir, white fir, and alpine fir.

Western Oregon County	Million Cu ft.	Western Washington County	Million Cu ft.
Benton	24	Clallam	2,404
Clackamas	1,120	Clark	44
Clatsop	895	Cowlitz	1,118
Columbia	28	Grays Harbor	3,121
Coos	762	Island	8
Curry	385	Jefferson	2,148
Douglas	1,536	King	2,000
Hood River	326	Kitsap	19
Jackson	805	Lewis	2,159
Josephine	71	Mason	435
Lane	1,200	Pacific	1,600
Lincoln	375	Pierce	1,005
Linn	1,105	San Juan	11
Marion	445	Skagit	1,518
Multnomah	125	Skamania	1,985
Polk	96	Snohomish	2,052
Tillamook	550	Thurston	18
Washington	35	Wahkiakum	372
Yamhill	13	Whatcom	852
Total	9,896	Total	22,869

INLAND EMPIRE PULPWOOD*

Data for Northeastern Washington was revised last in 1949. Data for Western Montana revised last in 1951.

Subregion†	Engelmann Spruce	Hemlock	Balsam Firs	Cottonwood-Aspen	Total
	Million Cubic Feet				
N. E. Washington	65	124	139	18	346
N. Idaho	608	386	1,697	10	2,701
W. Montana	826	56	253	50	1,185
North Idaho	860	506	2,496	39	3,901
Total	2,359	1,072	4,585	117	8,133

Source: Northern Rocky Mountain Forest and Range Experiment Station, Division of Forest Economics, Missoula, Mont.

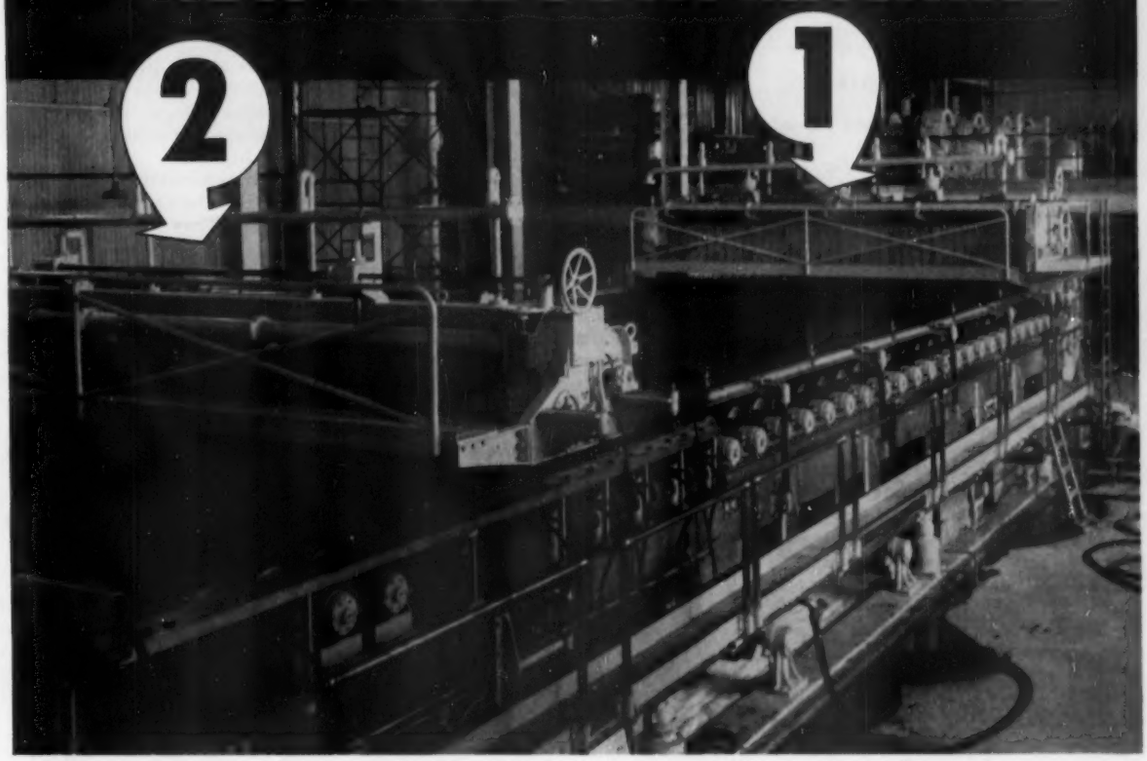
* The sound volume inside bark of trees larger than 5.0 inches d.b.h. from stump to 4- to 6-inch top diameter.

† Northeast Wash. consists of Ferry, Lincoln, Pend Oreille, Spokane, Stevens and Whitman Counties; North Idaho is north of Salmon River; western Montana is west of Continental Divide.



the ONE-TWO punch of BETTER papermaking

on NATIONAL CONTAINER'S NEW VALDOSTA MACHINE



1 Primary pressure inlet

2 Secondary pressure inlet

VALLEY
IRON WORKS COMPANY
APPLETON, WISCONSIN

by VALLEY



NORTH AMERICA

CANADA

Leads World in Exports

Population: 14,000,000; *Per capita paper consumption:* 250 lbs.
Paper mills: 94; *Woodpulp mills:* 34; *Other fiber pulp mills:* 2

Production (short tons)	*1953*	*1952*
Paper	6,819,840	6,436,871
Chemical woodpulp	3,740,123	3,579,909
Mechanical woodpulp	5,065,114	5,102,300
Newsprint	5,721,296	5,687,051
Woodpulp exports	1,956,280	1,902,059

Principal paper grades made: Newsprint, kraft and sulfite papers, book and fine papers, paperboard

Principal exports to: U.S., United Kingdom, British Commonwealth

PACE OF THE CANADIAN expansion slowed slightly in 1953, but the year was marked by confidence and stability, and overall production of some 9,300,000 tons represented an increase of nearly 2% over 1952.

No new mills went into operation during the year, but almost every company carried out significant improvements and the industry spent some $180,000,000 on its plants, all but $70,000,000 being for new construction, machinery and equipment, the balance being for maintenance and repairs. This expenditure brought to more than $1,100,000,000 the industry's outlay on plant, of which $675,000,000 was paid out for new facilities.

Canada continued to lead the world in total volume of pulp and paper exports, these being slightly higher than in the previous year for both newsprint and pulp, with significant improvement in the markets during the latter part of the period. The industry created more than $1,000 000,000 of new wealth for Canada and Canadians, and no other division of manufacturing in the country could equal its achievement in that respect.

Decline in export of book and writing paper, fine and wrapping grades, as well as paperboard, was more than offset by higher domestic sales for these products, with demand strengthening as the year advanced.

One of the interesting developments of the year was the conversion of several mills that had been producing unbleached sulfite and sulfate to the manufacture of bleached grades.

Production of most grades of pulp and paper was higher in 1953 than in 1952, and pulp exports, representing 22% of the total, were up about 3%, with newsprint output marginally higher. It was the tenth consecutive year of all-time high newsprint production—5,700,000 tons, most of the increase being accounted for by speeding up of existing machines and adoption of continuous operation at some mills that previously had been working on a six-day week basis.

Newsprint production gains were influenced, of course, by a continuing rise in world consumption. Consumption overseas was at a faster rate than in the United States, where the bulk of Canadian newsprint is marketed, but the apparent gain was about 4.4%, compared with 6.5% in 1952, whereas consumption in the United States was up only 2.2%. Canada's consumption was about 8% higher.

Canadian newsprint mills demonstrated their ability to keep pace with demand. They operated at close to rated capacity which was increased 3.4% during the year—200,000 tons. Newsprint shipments to the United States were about 26,000 tons higher than in 1952, and there would have been a greater increase if consumers had not made substantial reduction in their inventories. While overseas exports are less than pre-war, substantial increase was marked in sales to the United Kingdom.

Canada has a genuine reason to value its pulp and paper industry

PRELIMINARY FIGURES FOR 1953 ON CANADIAN PRODUCTION

	Production		Exports	
	1953	1952	1953	1952
Gross value of output ...	$1.1 billion	$1.1 billion	$876 million	$914 million
	Tons	Tons	Tons	Tons
Total woodpulp*	8,905,631	8,797,194	1,956,280	1,902,059
Bleached sulfite pulp	454,158	405,254	410,527	357,693
Unbleached sulfite pulp .	418,252	395,227	247,425	223,871
Bleached sulfate pulp ...	1,551,097	1,593,792	340,657	427,567
Unbleached sulfate pulp .	601,109	532,144	522,038	460,427
Other chemical pulp	593,012	547,690	170,162	144,151
Groundwood pulp	122,495	105,802	34,457	28,704
	5,065,114	5,102,300	222,309	248,802
Newsprint	5,721,296	5,687,051	5,334,287	5,297,681
Containerboard	371,744	341,873	24,572	27,045
Boxboard	367,633	345,686	25,760	39,312
Total paper board	739,377	687,559	50,332	66,357
Fine paper	195,984	177,330	10,999	14,246
Coated paper	23,375	19,066	1,078	1,235
Other printing paper	54,348	56,822	30,685	31,223
Specialty papers	93,690	86,497	2,222	4,027
Wrapping paper	238,147	224,467	9,096	11,714
Building papers & boards	193,000	185,638	4,000	5,763

There are some slight duplications in the foregoing figures. Some paperboard and wrapping paper is used by the mills for packaging. Coated paper covers a tonnage that undergoes a further processing after it leaves the paper machine and thus is also included under other grades.

* Includes screenings but excludes defibrated and exploded pulp.
Source: Canadian Pulp and Paper Association.



BIG EXPANSION IN NEWFOUNDLAND. New view of Bowater's Newfoundland pulp and paper mills at Corner Brook, Nfd., where No. 9 and 10 digesters add substantially to sulfite pulp production. No. 7 paper machine added five years ago made this one of biggest newsprint producers.

because, apart from its status as first in production, it is also first in salaries and wages paid to employees, with an annual payroll of about $380,000,000. It is also first in value of exports—about $876,000,000 last year; first in the purchase of goods and services and in the employment of transportation facilities. It also leads in the use of electricity, consuming a fifth of the nation's output.

Chief natural advantages of Canada are the vast extent of the country's forests and their suitability as a source of pulpwood, only Russia and Brazil having greater forested areas; the presence in enormous volume of clean water for manufacturing processes and the abundance of hydro-electric power, most of it comparatively cheap. Another advantage, of course, is the proximity to the world's greatest market—the United States.

Out of a total land area of 3,610,000 sq. mi. in Canada, 1,300,000 are forested, and of this about 503,000 sq. mi. are now classified as accessible and productive, although the latter figure is being enlarged as new techniques are developed for harvesting and market demands make wood previously regarded as uneconomic worth cutting.

Between 1940 and 1949 the average annual disappearance from the forests of Canada was about 3,500,000,000 cu. ft. of usable wood, and of this 20% was absorbed by the domestic pulp and paper industry, 33% was utilized by other forest industries, 21% was burned as fuel, 21% was destroyed by fire, insects and disease and 5% was exported in the form of logs, bolts and pulpwood.

Production of pulpwood in Canada in 1952 totalled 14,100,000 cords, and 82% of it was used domestically, the balance being exported, mostly to the United States.

As well as being the chief market for Canada's newsprint, the United States takes about 80% of the exports of chemical pulp and the Canadian supply represents about 10% of the United States requirements.

Although overall woodpulp production in Canada has doubled since 1939, groundwood production has increased by only 69%, whereas chemical pulp production has climbed 163% and sulfate pulps alone 318%. Although production of 8,900,000 tons of woodpulp in 1953 was higher than in 1952, it fell short of the all-time high in 1951, when output totalled 9,300,000 tons.

Newsprint accounted for 79% of all the paper produced in Canada. Wrapping and building papers made up 16% and other types, such as

CANADIAN FORESTS

	Square Miles
Forested Areas of Canada*: (All except 123,000 square miles, lies within the ten provinces.)	1,320,321
Forested Areas Classed as Unproductive (Small trees in adverse locations not expected to reach merchantable size.)	555,988
Productive Forest Areas (Capable of producing continuous crops of timber.)	764,333
Productive Forest Not Presently Accessible	261,000
Accessible Productive Forests (Two-fifths bears trees large enough for use; the remainder is younger growth.)	503,333
Privately Owned Forests	
Farm wood lots	35,594
Others	63,851
	99,445
Cutting Rights Leased by the Crown:	
Pulp and paper licenses	175,895
Saw timber licenses	32,536
Timber sales	3,871
Permit berths	691
	212,993

* Excluding Labrador.

Source: Federal Forestry Branch.

CONIFEROUS STANDS

Estimated Stands of Accessible Conifers by Provinces

	Millions of cubic feet	Pulp Production Tons—1951
Newfoundland*	3,337	†
Prince Edward Island	61	nil
Nova Scotia	2,939	†
New Brunswick	6,100	†
Quebec	45,928	4,282,568
Ontario	54,580	2,484,551
Manitoba	1,004	†
Saskatchewan	5,081	nil
Alberta	7,724	nil
British Columbia	54,660	924,154
Nfld., N.S., N.B. and Manitoba	.....	1,623,576
	181,423	9,314,849

† Figures for Nfld., N.S., N.B. and Manitoba are not published separately.
* Excluding Labrador.

Sources: Federal Forestry Branch and Dominion Bureau of Statistics.

CANADA PULP MADE FOR SALE

Kinds of Pulp	Quantity 1951	Quantity 1952	Selling Value at Mill 1951	Selling Value at Mill 1952	Average Value 1951	Average Value 1952
	Tons		$	$	$	$
Groundwood Pulp	429,175	331,491	32,187,351	23,405,511	75.00	51.99
Bleached sulfite						
Dissolving	408,969	383,645	81,904,028	70,845,884	202.71	178.18
Paper Pulp	357,299	316,563	53,741,668	47,276,218	150.41	133.98
Unbleached sulfite						
Strong	345,714	241,586	53,008,015	32,366,673	153.33	131.83
News grade	315,065	273,894	44,148,682	34,630,338	140.13	98.00
Sulfate						
Bleached	502,419	499,623	94,454,211	80,651,825	188.00	161.90
Semi-bleached	61	3,712	9,508	496,178	155.87	133.67
Unbleached	276,469	173,605	46,365,419	23,572,909	167.74	
Screenings, Chem.	37,613	31,613	1,312,359	1,000,740	20.84	38.01
Screenings, Mech.	10,587	8,015	220,881	155,429	20.84	14.26
All other pulps	43,903	38,433	6,479,124	5,255,816	147.58	134.92
TOTAL	2,727,274	2,374,321	413,831,246	319,657,521	151.74	

DEPENDABLE PERFORMANCE



fine and tissue papers, the remaining 5%.

Quebec continues to top the Canadian provinces, producing nearly 50%, Ontario being second with about 27% and British Columbia 8%, although recent developments will give the west coast province a higher percentage this year. The other producing provinces, Newfoundland, Nova Scotia, New Brunswick and Manitoba, provide the remaining 16%. Alberta may enter the producing field during the next two or three years. Spruce and balsam are the principal pulpwoods in the East, hemlock on the coast.

Canada has topped the world's newsprint producers since 1925.

FOREST CONSUMPTION

Average Annual Depletion 1941-1950*

	000's of cu. ft.	%	%
Logs and bolts for domestic use	1,089,947	30.5	38.3
Logs and bolts for exports	18,686	0.5	0.7
Pulpwood for domestic use	739,365	20.7	26.0
Pulpwood for export	153,503	4.3	5.4
Fuelwood	739,737	20.7	26.0
Ties, poles, pit-props, posts, rails	65,532	1.8	2.3
Miscellaneous	35,917	1.0	1.3
	2,842,687		100.0
Fire 231,524			
Insects and disease 500,000	731,524	20.5	
	3,574,211	100.0	

* Island of Newfoundland, but not Labrador, included since 1949.

Source: Federal Forestry Branch.

NEW WASTE WOOD CHIPPER

A waste wood chipper especially designed for sawmills who wish to make chips economically is offered in three disc sizes: 36", 42" and 48". Under normal operation these chippers can produce up to 15, 18 and 22 cords per hour respectively with low horsepower.

Tests made on southern pine slabs indicate that the chips produced by these machines may not need screening. The economy factor from this point alone is considerable. Most sawmills can pick enough clean wood off their waste conveyor to make a chipper installation well worth while, even without barking.

These chippers are ruggedly constructed and are designed especially for easy installation and low maintenance. These chippers are produced by the Hansel Engineering Company, 1500 Westlake Avenue North, Seattle 9, Washington. Inquiries in the South may be made to Owen-Richards Company, 1009 2nd Avenue North, Birmingham 4, Alabama.

Comparative tests made with the Hansel chipper and other chippers on Southern pine slabs indicate that the Hansel chipper makes a superior paper with greater strength. As a result of these tests several of these chippers are being ordered by a large kraft mill in the South.

(ADVERTISEMENT)

Integrated for Service!



BATHURST is an integrated organization which carries through the production of packaging materials from forest to finished product. This company's woodlands in Eastern Canada . . . its mills at Bathurst, N.B. . . . and its modern converting plants at Montreal and Hamilton are so closely linked in operation that opportunities for maximum economy and efficiency are assured.

That is one reason why this organization's Kraft corrugated shipping cases . . . produced in a wide variety of types and sizes . . . are setting new standards of value in Canadian industry.

Another reason is that Bathurst's intense research activities have raised markedly the quality of Canadian-produced packaging materials. These materials include Kraft liner and B.C.M. corrugating board for the shipping case industry in general—folding and set-up box-board for the paper-board industry—and unbleached sulphite pulp for makers of paper and paperboard.

Remember—whenever you see a Kraft shipping case or a paperboard carton—there's a good chance it had its origin in the timber limits of Bathurst!

KRAFT CONTAINERS **BATHURST** SHIPPING CONTAINERS

BATHURST POWER & PAPER COMPANY LIMITED, BATHURST, N.B. AND SUBSIDIARY COMPANIES:
KRAFT CONTAINERS LIMITED, HAMILTON, ONT. AND SHIPPING CONTAINERS LIMITED, MONTREAL, P.Q.

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PRINCIPAL STATISTICS OF CANADIAN PULP AND PAPER INDUSTRY

Year	Establishments	Capital	Employees	Salaries and Wages	Fuel and electricity purchased	Materials and supplies used	Gross Value of products
	No.	$	No.	$	$	$	$
1919	99	275,767,364	26,647	32,264,208	12,503,197	54,084,801	137,912,502
1925	114	460,397,772	28,031	38,560,905	17,506,735	76,514,990	193,092,937
1931	103	630,176,540	26,669	34,792,013	22,927,919	63,947,678	174,733,954
1937	98	570,352,287	33,205	48,757,795	29,121,065	91,121,629	226,244,711
1943	106	667,458,143	37,020	71,199,422	36,211,064	143,956,462	345,653,470
1948	117	1,100,000,000	51,924	151,362,761	41,365,665	274,553,791	825,857,664
1949	123	1,100,000,000	52,050	157,703,868	41,370,633	272,681,606	836,148,393
1950	124	1,150,000,000	52,343	169,246,531	44,440,376	289,548,301	954,137,651
1951	126	1,200,000,000	57,291	213,169,906	75,625,718	421,280,139	1,237,897,470
1952	128	1,250,000,000	57,803	225,353,327	76,739,757	497,046,828	1,157,887,657
1953*	128	1,300,000,000	58,000	230,000,000	78,000,000	500,000,000	1,100,000,000

* Estimated.

CANADIAN NEWSPRINT CAPACITY AND PRODUCTION

In thousands of short tons

	Rated Capacity	Idle Capacity	Operating %
1925	1,715	193	88.8
1930	3,600	1,096	69.6
1935	3,914	1,163	70.3
1940	4,368	949	78.3
1945	4,301	1,042	75.8
1947	4,350	nil	101.1
1948	4,478	nil	102.2
1949	5,113	nil	101.2
1950	5,227	nil	100.9
1951	5,360	nil	100.7
1952	5,510	nil	102.9
1953*	5,723	nil	100.

Source: Newsprint Association of Canada; 1949-1950 NAC estimates from company reports; including Newfoundland, beginning in 1949.

*Estimate by Newsprint Association of Canada.

CANADIAN PAPER PRODUCTION

	Newsprint Tons	Newsprint $ Value	Total Paper Tons	Total Paper $ Value
1917	689,847	38,868,084	853,689	58,750,341
1929	2,725,331	150,800,157	3,197,149	192,989,252
1932	1,919,205	85,539,852	2,299,767	114,115,570
1941	3,519,733	158,925,310	4,524,776	241,450,292
1945	3,324,039	189,023,736	4,359,576	282,837,614
1948	4,640,336	402,099,178	6,063,646	582,346,000
1949	5,187,206	467,976,343	6,539,969	641,459,838
1950	5,318,988	506,968,207	6,812,035	710,153,826
1951	5,516,279	564,361,193	7,225,271	824,029,649
1952	5,687,051	625,575,600	7,201,800	838,105,108
1953*	5,721,296	685,650,000	7,266,000	823,000,000

Source: Dominion Bureau of Statistics.
* Estimated by PULP & PAPER.

NEWSPRINT EXPORTS FROM CANADA

(SHORT TONS)

	U.S.A.	Overseas	Total
1935	2,052,000	523,000	2,575,000
1940	2,586,000	657,000	3,243,000
1945	2,534,000	525,000	3,059,000
1948	3,917,366	410,718	4,328,084
1949	4,354,000	440,000	4,798,000
1950	4,724,000	214,000	4,938,000
1951	4,790,000	375,000	5,165,000
1952	4,835,000	463,000	5,666,000
1953	4,885,000	455,000	5,720,000
1954 (est.)	4,980,000	545,000	5,915,000

Including Newfoundland since April, 1949.

CANADIAN PAPER PRODUCTION BY PROVINCES

(Quantity in Tons—Value in Dollars)

	Quebec	Ontario	British Columbia	Other Provinces	TOTAL
1945 Tons	2,292,442	1,267,796	334,502	464,836	4,359,576
1945 Value	$148,180,691	$86,395,223	$20,353,984	$27,907,716	$282,837,614
1948 Tons	3,240,623	1,837,510	425,104	560,409	6,063,646
1948 Value	$303,691,283	$187,182,675	$40,317,091	$51,155,793	$582,346,842
1949 Tons	3,222,063	1,817,933	471,619	1,028,354	6,539,969
1949 Value	$310,752,857	$189,616,876	$46,478,981	$94,611,124	$641,459,838
1950 Tons	3,315,631	1,903,721	498,286	1,094,397	6,812,035
1950 Value	$339,748,513	$211,416,005	$52,845,416	$106,143,892	$710,153,826
1951 Tons	3,511,669	2,019,235	513,165	1,181,202	7,225,271
1951 Value	$389,554,493	$251,918,611	$59,763,061	$122,793,484	$824,029,649
1952 Tons	3,515,193	1,963,403	540,140	1,183,064	7,201,800
1952 Value	$400,663,379	$246,215,714	$62,261,263	$128,964,752	$838,105,108
1953 Tons*	3,516,000	2,000,000	560,000	1,190,000	7,266,000
1953 Value*	$410,000,000	$215,000,000	$68,000,000	$130,000,000	$823,000,000

Source: Dominion Bureau of Statistics.
* Estimate by PULP & PAPER.

PULPWOOD PRODUCTION FOR CANADA BY PROVINCES

	1952	1953*
Quebec:		
Cords	5,561,695	5,560,000
Value	$166,150,668	$165,000,000
Ontario:		
Cords	3,062,903	3,000,000
Value	$86,923,474	$85,000,000
British Columbia:		
Cords	785,111	800,000
Value	$27,099,581	$30,000,000
Other provinces:		
Cords	2,230,482	2,200,000
Value	$54,740,680	$52,000,000
All Canada		
Cords	11,640,191	11,560,000
Value	$334,824,403	$332,000,000

*Estimate by PULP & PAPER.

CANADIAN WOODPULP PRODUCTION BY PROVINCES

(Quantity in Tons—Value in Dollars)

	Quebec	Ontario	British Columbia	Other Provinces	TOTAL
1945 Tons	2,887,176	1,468,682	520,571	724,385	5,600,841
1945 Value	$114,197,036	$62,596,260	$21,998,381	$33,081,445	$231,873,122
1948 Tons	3,902,072	2,226,124	688,209	858,674	7,674,079
1948 Value	$227,425,545	$153,870,832	$49,220,655	$55,449,132	$485,966,164
1949 Tons	3,698,401	2,138,444	666,542	1,349,611	7,852,998
1949 Value	$196,568,691	$140,662,434	$36,737,722	$71,169,647	$445,138,494
1950 Tons	3,922,543	2,297,518	776,896	1,476,067	8,147,014
1950 Value	$216,299,900	$156,390,753	$49,381,923	$80,511,349	$502,583,925
1951 Tons	4,282,568	2,484,551	924,154	1,623,576	9,314,849
1951 Value	$298,100,313	$219,571,231	$100,898,418	$109,310,043	$727,880,005
1952 Tons	4,192,047	2,308,722	915,634	1,552,606	8,968,009
1952 Value	$280,314,341	$182,773,000	$82,551,730	$104,382,109	$650,021,180
1953 Tons*	4,200,000	2,500,000	1,000,000	1,555,000	9,225,000
1953 Value*	$282,000,000	$185,000,000	$85,000,000	$105,000,000	$657,000,000

Source: Dominion Bureau of Statistics.
* Estimate by PULP & PAPER.

gentle with tissue





CAMACHINE Model TU DOUBLE SURFACE UNWIND

All controls are centrally located for ease of operation.



MODEL TU unwinds two tissue mill rolls simultaneously, combining them to make two-ply web at speeds up to 3500 fpm. Mill rolls are surface-driven by the gentle, positive contact of rubber-impregnated endless woven belts, selected for long wear.

Positive pay-off of the webs, even with out-of-round mill rolls, is assured through a combination of design features. For example: tension control, to minimize stretch and eliminate "snap-offs", is maintained from 0 and up through the adjustable variable speed drive. Mill roll faults, such as "baggy ends" or misalignment, are corrected through vertically adjustable compensating rolls and horizontally adjustable self-aligning reel bar bearings.

Additional features include the centralized push-button control station; pneumatic operation of the reel bar latches; automatic reel bar ejection to reduce downtime; and provisions for disengaging the back section when running single-ply tissue. Installation is at floor level with no pits or holes required to accommodate the drive belts.

In every respect the Model TU assures the high standards of dependability which are demanded in continuous paper mill service... *Follow Camachine Engineering!*



Don't wind up with less than a *Camachine*

CAMERON MACHINE COMPANY • 61 Poplar Street • Brooklyn 1, N. Y.

CANADIAN PULP AND PAPER PAYROLL DATA

	Total Employes	Employes On Salary	Average Salary	Employes On Wages	Average *Wage	Total Salaries-Wages
1920	31,298	2,669	$2,449	28,629	$1,352	$ 45,253,893
1939	31,016	4,382	$2,482	26,634	$1,271	$ 44,737,739
1943	37,020	5,384	$2,723	31,636	$1,787	$ 71,199,422
1947	49,946	7,706	$3,411	42,240	$2,443	$129,477,995
1950	52,343	8,578	$4,163	43,765	$3,051	$169,246,531
1951	57,291	9,413	$4,800	47,164	$3,800	$213,164,906
1952	57,291	9,493	$5,069	47,798	$3,899	$229,000,000
1953**	57,300	9,500	$5,250	47,800	$4,000	$231,000,000

* Woods labor not included.
**Estimate by PULP & PAPER.
Source: Dominion Bureau of Statistics.

MILL LOCATIONS

	Pulp Mills	Pulp & Paper Mills	Paper Mills	Total
Newfoundland	1	2	..	3
Nova Scotia	2	2	..	4
New Brunswick	5	3	..	8
Quebec	13	32	10	55
Ontario	9	18	17	44
Manitoba	..	2	..	2
British Columbia	6	4	2	12
Canada	36	63	26	128

Note: There are three mills in Newfoundland
Source: Dominion Bureau of Statistics

CANADIAN PULPWOOD

(In cords)

Year	Production	Consumption	Exports	Imports
1921	3,273,131	2,180,578	1,092,522	....
1925	5,092,461	3,668,959	1,423,502	....
1930	5,977,183	4,741,349	1,330,466	94,632
1935	6,095,016	5,005,083	1,109,873	19,940
1940	8,499,922	6,996,119	1,551,429	47,626
1945	9,145,673	7,478,508	1,671,298	4,133
1946	10,523,256	8,684,756	1,855,381	16,881
1947	11,484,522	9,551,050	1,983,980	50,508
1948	12,497,926	10,256,549	2,317,346	75,969
1949	11,850,254	10,237,976	1,612,278	5,491
1950	12,873,476	11,138,578	1,734,898	28,220
1951	15,053,910	12,554,064	2,871,173	41,000
1952	14,102,670	11,609,407	2,493,263	30,784
1953*	11,500,000	10,000,000	1,500,000	25,000

Imports not reported prior to 1928.
Source: Dominion Bureau of Statistics.
* Estimated by PULP & PAPER.

CANADA—PULP PRODUCTION

(Tons of 2,000 lbs.)

	Mechanical Tons	Sulfite Tons	Alkaline Tons	Total Tons
1920.	1,090,114	654,273	188,487	1,922,774
1925.	1,621,917	842,785	242,207	2,706,909
1930.	2,283,130	1,076,804	188,253	3,548,187
1935.	2,458,000	1,025,000	206,000	3,689,000
1940.	3,305,484	1,480,545	399,267	5,290,762
1945.	3,341,920	1,639,684	478,740	5,460,344
1946.	3,997,848	1,830,017	562,233	6,390,098
1947.	4,275,269	2,027,532	689,435	6,992,236
1948.	4,413,513	2,138,011	815,076	7,366,600
1949.	4,718,806	1,991,459	855,784	7,566,049
1950.	4,910,803	2,110,773	1,053,588	8,075,164
1951.	5,125,043	2,533,481	1,463,705	9,122,229
1952.	5,102,000	2,367,000	1,331,000	8,800,000
1953.	5,065,114	2,400,000	1,440,517	8,905,631

Dominion Bureau of Statistics and Canadian Pulp and Paper Association.

CANADIAN STAPLE FIBER

Production and Imports

(in thousands of pounds)

	Domestic Viscose Deliveries	Domestic Acetate Production	Domestic Nylon Production	Imports	Total
1939	—	—	—	2,701	2,701
1946	—	750	—	9,565	10,315
1949	2,084	2,050	1,000	11,131	16,265
1950	11,866	4,200	1,500	7,409	24,975
1951	10,220	4,600	1,750	18,736	35,306
1952	16,036	5,750	2,500	9,823	34,109
1953	13,846	4,996	3,000	8,018	29,860

Source: Canadian Textile Journal.

EASTERN CANADIAN PULPWOOD PRODUCTION

(East of Rockies, including Newfoundland)

Wood-Year	Cords
1939-40	6,350,000
1946-47	9,324,000
1947-48	11,162,000
1948-49	8,840,000
1949-50	11,850,254
1950-51	12,873,476
1951-52	14,193,894
1952-53	14,152,176
1953-54*	10,760,000

*Estimated
Source: Canadian Pulp and Paper Association

CANADA'S PULP EXPORTS

	Tons	Value
1921	527,222	$33,133,675
1926	1,003,081	52,077,122
1932	452,292	18,930,065
1937	870,711	41,815,731
1942	1,510,727	95,266,873
1947	1,698,712	177,802,612
1948	1,796,998	211,564,384
1949	1,546,198	170,675,310
1950	1,846,143	208,555,549
1951	2,260,834	365,132,884
1952	1,902,059	291,863,498
1953	1,956,280	300,000,000

Source: Canadian Dominion Bureau of Statistics and Canadian Pulp and Paper Association.

CANADA'S FOREST RESOURCES—A NEW SURVEY—Merchantable and Accessible

Saw Timber (10" D.B.H. and Up)—in Millions of Feet Board Measure

	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia Coast	British Columbia Interior	All Canada
Softwood	3,127	65	4,849	5,000	38,181	42,775	815	580	7,000	76,108	33,630	212,130
Hardwood	—	40	1,261	1,500	14,019	11,529	1,630	1,010	2,080	*	*	33,069
Total All Species	3,127	105	6,110	6,500	52,200	54,304	2,445	1,590	9,080	76,108	33,630	245,199

Smaller Material (4" D.B.H.) in Thousands of Cords

Softwood	31,902	560	23,167	60,000	450,495	261,515	9,900	3,200	74,400	13,922	172,364	1,101,425
Hardwood	—	240	5,363	30,000	176,108	300,380	19,090	50,130	36,000	*	*	617,311
Total All Species	31,902	800	28,530	90,000	626,503	561,895	28,990	53,330	110,400	13,922	172,364	1,718,736

* British Columbia forests contain considerable quantities of hardwood, but no complete inventory has yet been made. Survey now being carried out is expected to be finished in 1955. Source: Dominion Forest Service.



Here's a new source for caustic soda

If your plant is in this area you can now have liquid caustic soda delivered more rapidly, more dependably, than ever before.

Here's what this new Hooker caustic soda plant at Montague, Mich., means to Midwest industry:

1. **Fast delivery.** You can have caustic soda delivered by tank car, loaded and dispatched within 24 hours of your call. In and near Chicago, tank car deliveries are made from Chicago stocks.
2. **Freight savings.** Depending on locality, you can save up to $2.8¢ per ton on freight. (To learn specific freight savings to your plant, just phone the Chicago office—CEntral 6-1311.)
3. **Dockside delivery.** On Lake Michigan and adjacent waterways you can have Hooker caustic delivered by barge—a new Hooker service (minimum 250 tons, dry basis). Savings are substantial.
4. **Prompt service you can count on.** At the Hooker sales office, 1 N. LaSalle St., Chicago, men are ready to help you plan efficient handling and storage, meet emergency needs, work out the most economical purchasing and delivery arrangements.
5. **Smoother, better processing.** You can use constant processing methods, and get consistent results with Hooker caustic soda. It's produced under careful control; more than 20 separate inspections and analyses protect its uniformity.

Tighten up your caustic supply line now

Many industrial leaders in the Midwest are already enjoying the convenience, economy, and dependable supply of Hooker caustic shipped from Montague.

You can have the same convenience and security *tomorrow*. Just pick up your phone and call us.



Caustic soda for Midwest Industry comes from this new $12 million Hooker plant at Montague, Mich. The plant is built over a tremendous bed of pure salt, which supplies the caustic-producing cells.

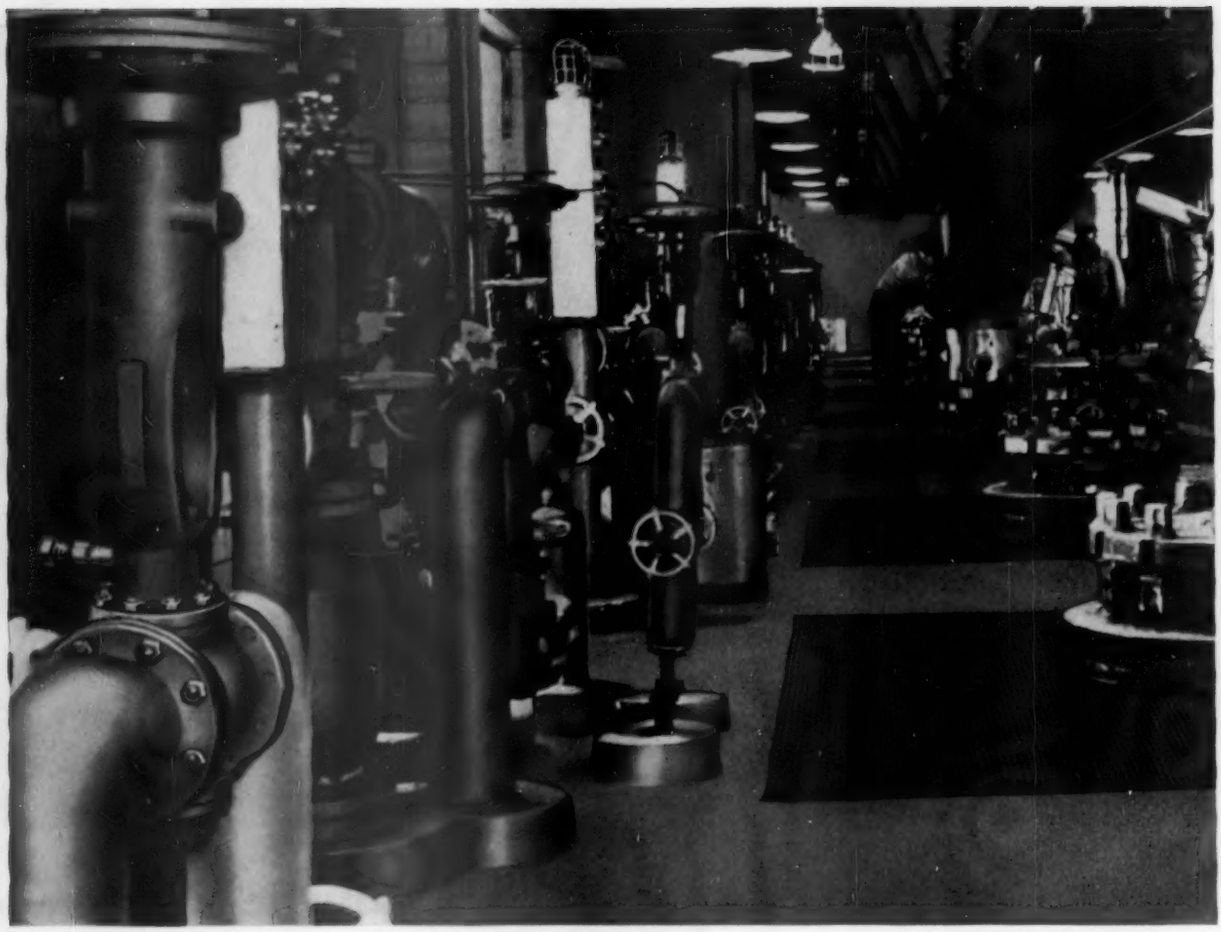
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From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY

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Another Mill Makes More

and cuts steam consumption 15% with Masoneilan

"We're getting a more uniform pulp at a reduced steam cost since installing a Masoneilan Digester Control System," says one of the superintendents of this mill.* "Our steam consumption used to average 3275 pounds per ton of pulp. Now we're saving about 500 pounds of steam per ton.

"Also very important is quality of pulp — the paper mill superintendents say that our pulp is more uniform. They no longer get sudden changes in freeness. Their refining equipment does not have to be changed as often, and the weight variation has decreased."

Another mill using Masoneilan Digester Controls reports 75% less liquor carry-over than with manual control . . . 4% less steam used per cook . . . more uniform cooking, more uniform pulp . . . and greater chip loading per cook.

And the story is much the same in dozens and dozens of other mills. But how about your mill? Have you tried Masoneilan Digester Controls yet? Here are some of the improvements you can expect with this versatile system.

Higher Liquor Volumes
With Masoneilan's automatic cooking control you can use liquor volumes as high as 50%.

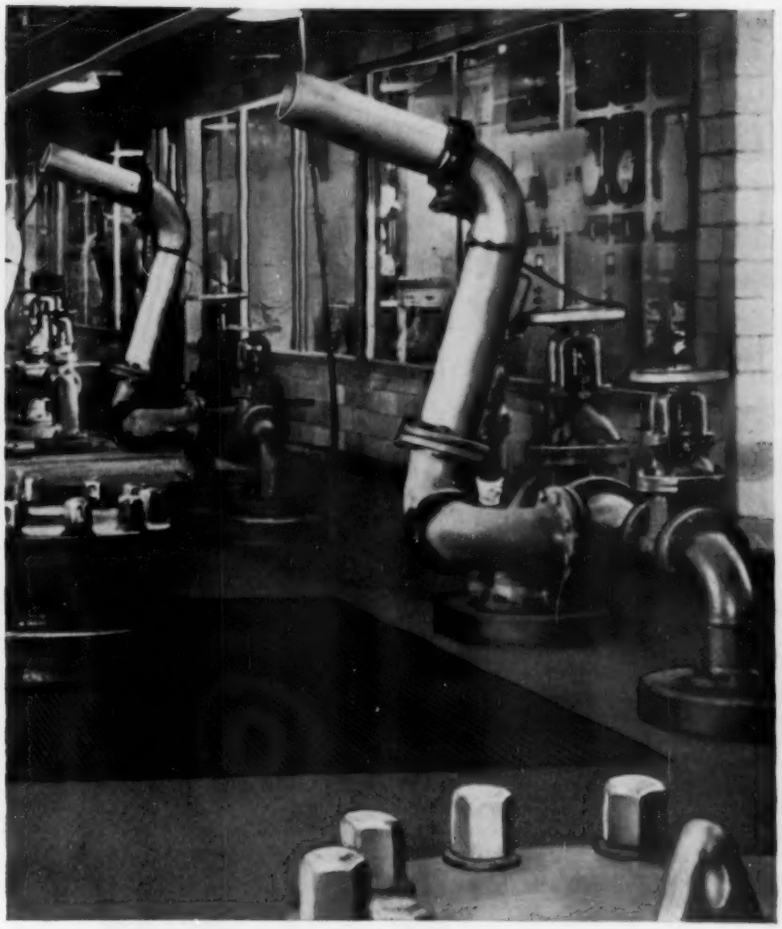
Packed Digester Cooking
You'll be able to put more chips in your digester, increase your yield per cook in some cases as much as the equivalent of an extra cook a day.

More Uniform Pulp
So uniform that variations in freeness and weight are substantially reduced at the paper machine.

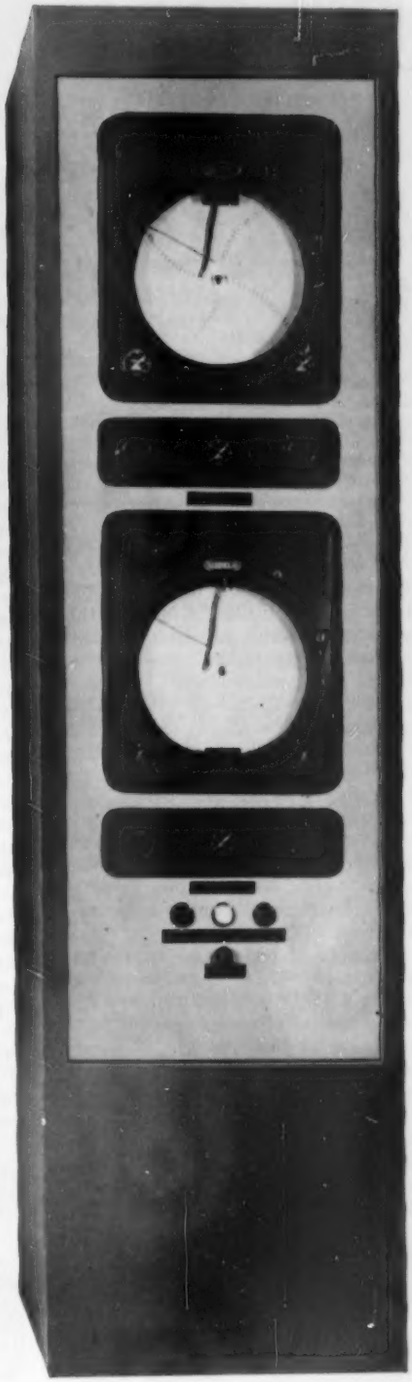
Lower Steam Consumption
You'll use from 4 to 15% less steam per ton of pulp.

Better Boiler House Loading
More uniform steam consumption permits better spacing of boiler house load.

*Name on request



A battery of digesters in a Southern mill, building profits with Masoneilan Controls.



Uniform Pulp...

Sulphate Digester Controls

Less Liquor Carry-Over
Because steaming rate is closely controlled liquor carry-over is reduced as much as 75% compared to manual control.

More Turpentine
Masoneilan Controls reduce chemical consumption, increase turpentine production.

Fewer Rejects
You get a *better, more uniform* product at *lower* cost. Masoneilan Digester Controls often pay for themselves in just a few *days.*

More information on this profit-building digester control system will be sent on request.

MASONEILAN

MASON-NEILAN REGULATOR CO.
1181 ADAMS STREET, BOSTON 24, MASS., U. S. A.

Sales Offices or Distributors in the Following Cities: New York • Syracuse • Chicago • St. Louis • Tulsa Philadelphia • Houston • Pittsburgh • Atlanta • Cleveland • Cincinnati • Detroit • San Francisco Boise • Louisville • Salt Lake City • El Paso • Albuquerque • Odessa • Charlotte • Los Angeles Corpus Christi • Denver • Appleton • Birmingham • New Orleans • Dallas • Seattle
Mason-Neilan Regulator Co., Ltd., Montreal and Toronto



EUROPE

UNITED KINGDOM

Paper Demands Rising

Population: 53,000,000; *Per capita paper consumption:* 144 lbs.

Paper mills: 206

(short tons)	*1953*	*1952*
Paper production	2,668,300	2,719,548
Paper and board imports	672,647	635,571
Paper and board exports	253,441	212,931
Woodpulp imports	1,606,000	1,438,090

Principal grades made: Newsprint, Book and writing, Paperboard, Wrapping, Fine

Principal paper imports from: Sweden, Norway, Finland, Holland, Canada

Principal woodpulp imports from: Sweden, Norway, Finland, Canada

Principal paper exports to: Australia, New Zealand, South Africa

OPTIMISM PREVAILING in most industries of the United Kingdom this year as a result of rising exports and other factors has been reflected in the paper field, where production in 1953 was within 50,000 tons of the all-time postwar peak of 1951 when it totalled 2,719,548 tons. Government controls on newsprint use were expected to be removed before long.

Paper production in 1953 was divided roughly as follows: Newsprint, 603,000 tons; board, 758,800 tons; other papers, 1,306,500 tons. Production of wrapping papers amounted to about 541,000 tons.

Imports of paper and board last year were 672,647 tons, valued at about $118,000,000, this representing about 63% of 1938 tonnage and 243% of the value that year. In 1952, imports totalled 635,571 tons valued at about $123,000,000.

Exports of paper and board, including transparent cellulose wrappings, amounted to 259,365 tons, which was 144% of the pre-war (1938) figure. Newsprint was the largest single export item, amounting to 124,835 tons. Value of exports were lower than in 1952—$89,600,000, compared with $106,400,000.

There was a rise of 20% in paper and board consumption in the United Kingdom in 1953, although, mainly because of restrictions on newsprint, actual tonnage consumption was more than half a million tons less than in 1939.

Tonnage of papermaking material imported last year was 1,905,184, which compares with 1,728,974 the previous year. Comparative figures (1952 in parenthesis) for the respective materials are: Pulpwood (piled cubic fathoms) 67,924 (108,418); woodpulp 1,606,073 tons (1,438,909); esparto and albardin grass, 253,711 tons (238,278); rags, 26,809 tons (17,778); others, 18,591 tons (34,828).

Taking their cue from the generally improved market, several larger companies have undertaken important expansion. Three new newsprint machines are at present under construction or being installed. At the Kemsley mill of the Bowater Corp. the No. 6 machine was to be in operation by midsummer 1954 and two new machines were being installed at Imperial Paper Mills.

In the fine paper field the Guard Bridge Paper Co. has installed a new machine, which has a complete sectional electric drive, electronically controlled.

Among outstanding developments during the year have been extension of the corporate and industrial holdings of some of the bigger groups. Wiggins Teape & Co. (1919) Ltd., acquired control of Thomas Owen & Co., manufacturers of glassine, parchment and other wrapping papers. More recently Albert E. Reed & Co., Ltd., makers of newsprint and wrapping papers, widened its already substantial interest in paper converting by acquiring control of Thompson & Norris Manufacturing Co., Ltd., makers of fiberboard and other boxes.



ROW ON ROW of finished rolls of newsprint await shipment from paper stores of Bowater organization.

To provide for greater fuel economy and increased power demands at the Kemsley Mills, a new power plant, said to be the most modern in Europe, was under construction in 1954 at a cost of about $6,700,000. It is estimated that this plant will reduce consumption of coal by about 50,000 tons annually. The older and less economical power plant at the adjacent Sittingborne Mills will be

UNITED KINGDOM—WOOD-PULP-PAPER

Thousands of Short Tons—Source: Board of Trade

	Consumption							*Newsprint*		*Total Paper*	
	Pulpwood	*Woodpulp*	*Esparto*	*Rags*	*Straw*	*Waste Paper*	*Paper Produced*	*Imports*	*Exports*	*Imports*	*Exports*
1938								491	62	1,177	193
1939							2,894				
1946	113	995	100	147	321	680	1,908	114	16	357	126
1949	230	1,272	386	152	93	844	2,475	199	66	509	199
1950	332	1,724	330	146	107	965	2,835	151	111	736	298
1951	n.a.	1,983	389	152	168	998	3,100	171	95	973	265
1952	n.a.	1,608	238	119	136	n.a.	2,750	261	73	635	219
1953	n.a.	1,452	225	114	116	888	2,668	275	124	672	259

eliminated, and power and steam will be supplied to both mills (owned by Bowater) from this one big station. The boiler will be capable of producing enough steam to generate electricity to meet requirements of a town of 250,000 people. The new No. 6 machine at Kemsley, companion of the famous No. 5, widest in the world, will cost about $6,500,000, and will increase capacity by 60,000 tons newsprint annually. It is to be in operation by the spring of 1955.

A development at Sittingborne Mills is a new straw pulping and bleaching plant. In the past only coarse straw was used there for corrugated and board. Now, bleached straw pulp will be used with other pulps in manufacture of white printing papers. Capacity of the plant is 100 tons a week. Most raw material is from southeastern England.

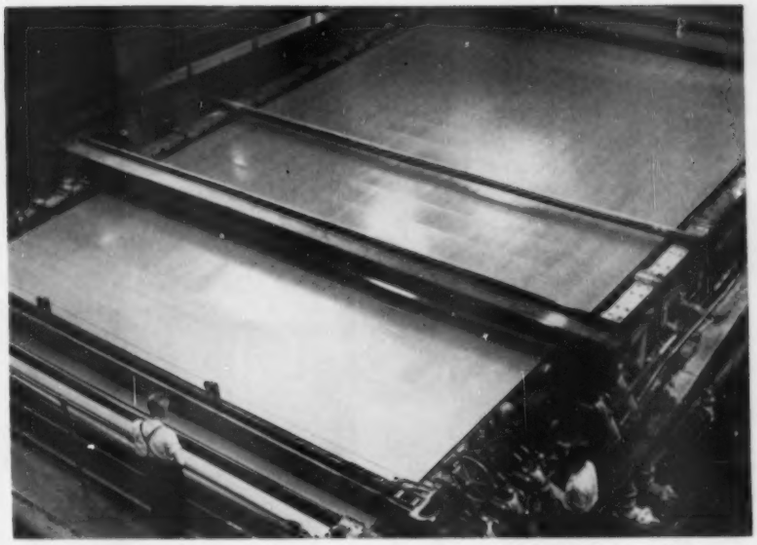
At the Thames Mills at Northfleet a second new power station is also under construction. One modern boiler with a capacity of 220,000 lbs per hour and one turbine of 15,000 kw will replace eight boilers and four turbines which have been in use for the past quarter century. Shartle-Dilts Hydrapulpers have been placed in operation at all Bowater mills in the United Kingdom. At Bowater's Mersey Mill is a new plant where kraft paper is laminated with a layer of bitumen for production of multiwall sacks.

At Ellesmere Port is a new factory in fields never entered by Bowater until postwar years—the fabrication of containers and packages in great variety. Another factory at Croydon has become an important maker of corrugated fiberboard containers. Two more, at Brentford, Middlesex and Disley, Cheshire, make fiber drums for chemicals and other sensitive materials. Another, at Bolton, is producing paper bags. At Sittingborne equipment at cost of $1,120,000 will produce protective wrapping papers for foodstuffs and soap.

In Scotland, the Guard Bridge Paper Co., a fine paper producer, has installed a new machine, which is driven by a complete sectional electrical drive, electronically controlled.

R. & W. Watson, Ltd., another Scottish mill, is installing a new machine at its Linwood mill to replace one built in 1885. This old machine is believed to be the first machine built for production of twin-wire papers.

Not all sections of the industry were equally busy last year, but packing and wrapping became, in contrast to 1952, fully booked with



TRIMMING 300 in., this Kemsley No. 5 machine at Kemsley Mills, England, owned by Bowater, is believed to be largest in the world. View is from wet end of machine.

business. This was due to a revival in the textile field and relaxation of controls on certain foodstuffs and growing demand from domestic consumers for increasing varieties of packed goods. Later in the year printing, writing and specialty mills also became more active.

Consumption of all grades of paper has reached the highest average since the war, and demand for newsprint and magazine papers has again outstripped available supplies. Stocks are being rapidly consumed and this spring were at a much lower level than a year ago. Newspaper circulations have increased some 70% since 1939 and if the newspapers of today were allowed to print the same number of pages as before the war consumption of newsprint would exceed 2,000,000 tons a year, compared with the 700,000 tons on the current eight-page basis.

Newsprint is the only kind of paper still subject to restriction. On this point Sir Vansittart Bowater, chairman of the Bowater organization, comments:

"The time has come when it is vital that this restraint should be removed and the necessary currency —calculated to represent only about $14,000,000 per annum—made available to enable the printing by the popular national dailies of up to 12 pages against the present average of 8 pages."

"We entered the year with full order books," he reports. "Production of our mills at home and overseas, including the new mills in the U.S. (Bowaters Southern Corp. in Tennessee), has been sold for a long time ahead. Prices for both our products and raw materials seem to have reached a reasonable degree of stability. We look forward to the future with some confidence."

WEST GERMANY

Forges Back as Leader

Population: 49,300,000 in West Germany and 2,200,000 in West Berlin; *Per capita paper consumption:* 95 lbs.

Paper mills: 329 *Woodpulp mills:* 17 *Straw or vegetable fiber mills:* 3

Production (short tons)	*1953*	*1952*
Paper	2,170,797	1,868,816
Chemical woodpulp	615,672	560,287
Mechanical woodpulp	525,343	487,860
Straw & other pulp	46,817	41,770
Paper imports	279,143	177,538
Paper exports	30,256	45,794
Woodpulp imports	364,143	268,853
Woodpulp exports	29,520	32,888
Principal paper grades made:		
Newsprint		223,164
Kraft		150,658
Sulfite		543,223
Book and Writing		421,548
Paperboard		548,491
Tissue		20,248
Cigaret and Fine		263,464

Principal paper imports from: Finland, Sweden, Netherlands, Austria, Norway

Principal woodpulp imports from: Sweden, Finland, Norway, Austria

Principal paper exports to: Netherlands, Egypt, Belgium, Great Britain, Switzerland

Principal woodpulp exports to: France, Italy, Netherlands, Great Britain

WEST GERMANY has emerged from the rubbles and ruins of destroyed factories, to become the No. 1 commercial and industrial power on continental Europe. This startling

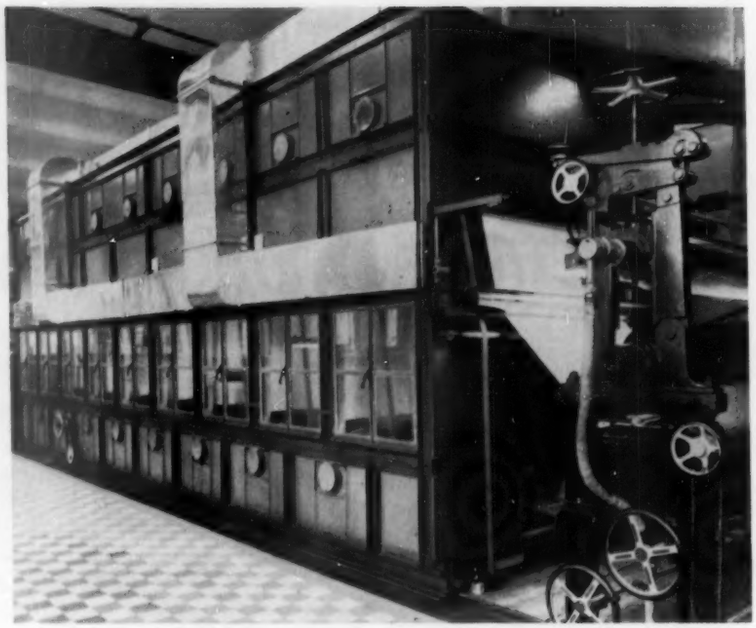


EUROPE

recovery has been made at the personal sacrifice of her people who are doing without many of the products being exported.

This spirit of austerity and self-sacrifice accounts in part for West Germany's per capita consumption being only 75% of the 1938 level, while the pulp and paper industry's production has already eclipsed her pre-war record, although all East Germany is in Russian hands.

An authoritative commentary on West Germany's pulp and paper industry has been written for PULP & PAPER by Max H. Schmid, President, Waldhof Paper Co., Wiesbaden, Germany. His company, one of the more progressive pulp and paper companies in Europe, has been invited to collaborate in building mills in Southern U.S., Brazil, Canada and Africa, but has not announced any decisions.



This is drying section for coated papers in mill of Felix Schoeller, Jr., Burg Bretesch, Germany, one of most progressive German paper mills for the production of high quality papers, especially photographic papers.

By Max H. Schmid
President, Waldhof Paper Co.

Compared with the average of the two preceding years, the Federal Republic of Germany (Western Germany) increased her output of paper and board in 1953 more than any other European country. This was brought about by installation of new paper machines and the modernization of existing plants.

However, even the increased capacity of the paper and board industry of Western Germany could not satisfy the increased demand. In 1953 the surplus of imports over exports of paper and board (about 220,000 short tons) rose to approximately one-tenth of the home production (about 2,200,000 short tons). Of the total consumption of newsprint about a third was imported.

The favorable development of the consumption of paper and board is the most important characteristic of 1953. By 1951 and 1952 West German economy reached its pre-war level in many respects, but only three-quarters of the total paper and board consumption of 1938 (79 lbs. per capita a year) were consumed. The restrictions of war econ-

WEST GERMANY—PULPWOOD

(In Thousands of Cords)

	Produced	*Imported*	*Total Received*	*Total Consumed*
1939 (All German)	1,935	930	2,916	3,390
1949 (U.S., British Zones)	876	69	945	844
1950 (U.S., British, French Zones)	1,082	216	1,398	1,290
1951 (West Germany)	1,364	548	2,486	2,116
1952 (West Germany)	1,074	381	1,455	1,363
1953	1,005	294	1,299	1,461

WEST GERMANY—PAPER PRODUCTION

(In Thousands of Short Tons)

	Book & Fine	*News*	*Tissue*	*Kraft*	*Total Paper (Includes other grades)*	*Paper Board*
All Germany:						
1939	242	504	39	278	2,956	1,057
West Germany:						
1949	35	140	10	123	983	407
1950	69	187	15	145	1,258	464
1951	64	178	18	157	1,438	548
1952	68	191	17	111	1,382	487
1953	86	223	20	151	1,622	548

WEST GERMANY—WOODPULP PRODUCTION

(In Thousands of Short Tons)

	For Paper		*Rayon & Dissolving*	*Straw-Esparto*	*Total Chem.*	*Ground Wood*
	Sulfite	*Kraft*				
All Germany:						
1939	1,022	130	302	94	1,545	1,150
West Germany:						
1949	343	3	97	23	466	362
1950	444	1	128	36	610	435
1951	468	1	179	46	694	506
1952	425	1	135	42	603	488
1953	445	1	170	47	663	525

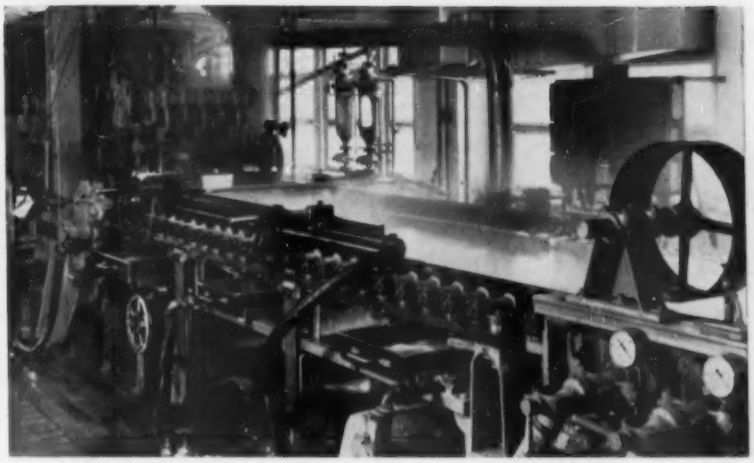


GERHARD SCHOELLER (left) is Chairman of Assn. of German Pulp, Paper and Board Industry, Bonn. MAX H. SCHMID (right), President of Waldhof Paper Co., Wiesbaden, again gives authoritative comment on West Germany's pulp and paper industry.

omy and still more so the years of scarcity after the war had apparently changed the habits of the consumers to such an extent that a longer period of normal economic conditions was necessary to create a heavier demand for paper and board.

In 1953 not less than 95 lbs. per capita were consumed. This is still less than the pre-war status, while in the rest of the European countries (with the exception of Great Britain) this has been exceeded for quite some time. Therefore a further increase in consumption during the next years and a favorable employment situation in the West German paper industry may be counted upon. The installation of a few more new paper machines planned will bring about a further rise of production of paper, especially newsprint.

The West German chemical and mechanical pulp industry, too, has been able to increase its output, although not to the same extent. No increase of its capacity for the production of chemical pulp during the next years is to be expected. The investments already put into effect or planned are aimed first at the rationalization and modernization of the existing mills. For the production of mechanical pulp, however, some new plants are planned.



Every phase of paper making (temperature, humidity, pressure, weight per sq. in., etc.) for every kind of paper can be measured and registered on this new experimental paper machine of the Zellstofffabrik Waldhof mill in Mannheim, Germany.

RUSSIA AND EUROPE SATELLITES

"Plans" Call for Large Increase in Production

	Population	*Production*	*Lbs. per capita Consumption**
Russia	193,000,000	1,581,000	15.5
Czechoslovakia	12,463,000	340,000	39
Poland	24,977,000	360,000	35
Rumania	16,094,000	75,000	7
Hungary	9,313,000	75,000	15
Bulgaria	7,235,000	34,000	15.8
East Germany	17,400,000	800,000	45

**Including imports used*

Russia only (short tons)	*1953 (est)*	*1952*
Paper & board production	1,581,000	1,500,000
Woodpulp production	2,300,000	2,204,000
Chemical	1,300,000	1,157,000
Mechanical	1,000,000	1,047,000

Number of Cellulose Pulp Mills: 90
Pulp imports principally from: Finland, Sweden
Paper imports principally from: Finland, Sweden

RUSSIA IS THE LARGEST country in the world; her 8,524,750 square miles occupy one-sixth of the earth's land surface. Her vast forests and woodlands extend 2,272,400,000 acres. A *N.Y. Times* reporter, in a story on Siberia, recounts flying over that area's far-flung forests. He says great fire scars can be seen, but that they are infinitesimal when compared to the seeming infinity of forests.

The Fifth Five Year Plan, announced in 1952, calls for an increase of 46% in paper production by 1955 over 1950. This is an average increase of 110,000 tons a year, but based on verified increases in 1952, which totaled 1,500,000 tons, this annual increase need be 80,000 tons, and in fact, if the rate of increase from 1950 is maintained, actual total production might very well be 2,000,000 tons.

Estimated woodpulp production of the Soviet Union, Red China and all Iron Curtain countries, according to James L. Ritchie, executive director of U.S. Pulp Producers Assn., was 4,000,000 tons in 1953. This is less than one-tenth of world production (nearly 43,000,000 tons).

Chief deterrents to greater utilization of forest resources in Soviet Russia are the lack of trained workers and scarcity of mechanized equipment. This latter difficulty may be resolved by the recent purchase from a Swedish firm of producer-gas motors by the Soviet forest industry. The initial order is valued at $55,000 and additional orders are expected for these motors which are to be used in northern Russia.

Russia concluded an agreement in Nov. 1953 to import one newsprint machine and 14,000 tons of news-

RUSSIA AND SATELLITES
Woodpulp—In Thousands of Short Tons

	1951			*1952*		
	Produced	*Imports*	*Exports*	*Produced*	*Imports*	*Exports*
Chemical:						
Bulgaria	0	33	0	NA	NA	NA
Czechoslovakia	314	6	33	NA	1	NA
East Germany	309	0	17	331	7	NA
Hungary	0	11	0	0	7	0
Poland	176	64	0	165	42	NA
Rumania	77	0	6	76	1	NA
U.S.S.R.	1,543	44	66	1,157	13	2
Mechanical:						
Bulgaria	6	6	0	6	NA	NA
Czechoslovakia	94	1	0	NA	0	0
East Germany	331	0	0	342	2	0
Hungary	7	11	0	8	1	NA
Poland	132	2	0	154	0	NA
Rumania	50	0	6	51	0	NA
U.S.S.R.	937	0	44	1,047	0	NA

(Estimated by U. S. Pulp Producers Association) NA—not available



print from Finland.

Paper imports from Finland in 1953 were 49,317 short tons, compared with 26,169 tons in 1952. Of this amount, newsprint totaled 9,801 tons; wrapping papers totaled 20,788 and writing and printing papers totaled 14,560 tons.

Poland imported 165 tons of paper from Finland in 1953; a drop from the 304 tons in 1952.

Other Data Reveal Soviet Plans

Der Zellstofffabrik Waldhof, of West Germany, one of the world's great pulp and paper companies, has issued a new annual Review this year, which includes a review of this industry throughout the world. For Russia and its satellites, it says "Plans" call for considerable increases in tonnage. It gives these production figures (translated into short tons):

Soviet Russia—Paper Production:

1937—913,000 1952—1,540,000
1955 (Plan)—1,914,000.
(In addition, paperboard production ranged from 220,000 to 275,000).

East Germany:

1952—Paper, 415,000; Paperboard, 215,000. 1955 (Plan)—Paper, 542,000; Paperboard, 273,000.

Poland:

1937—Paper, 226,000; Paperboard, 44,000. 1950—Paper, 260,000; Paperboard, 60,000. 1952—Paper, 286,000; Paperboard, 94,000. 1955 (Plan)—Woodpulp, 462,000; Paper, 583,000; Paperboard, 104,000.

Czechoslovakia:

1937—Paper, 286,000; Paperboard, 76,000. 1949—Paper, 302,000; Paperboard, 88,000. 1953 (Plan)—Paper, 352,000; Paperboard, 115,000.

Hungary:

Paper and paperboard, now about 55,000 tons annually. 1955 (Plan) 110,000.

Rumania:

Now about 132,000 (paper and paperboard).

Bulgaria:

Now about 25,000 (new capacity being added).

Finnish exports of paper to East Germany were 1,101 tons in 1952 and 5,871 tons in 1953.

To assure attainment of the 5 year goal, the Soviet government is making a vigorous drive to have every pulp and paper mill fulfill planned production. A unique feature of the tasks confronting the industry, according to the last word PULP & PAPER has received through a translation of a Russian publication, especially made for this magazine, is not only the quantitative increase in all types of production, but simultaneously a marked improvement in the quality of production. Here are some interesting excerpts from this revealing report.

"It must not be thought that there are no more reserves in our industry. There are such reserves and they must be placed in service of the people. First of all, we must see that no enterprise fails to fulfill the state plan.

Singled out for especially poor production by the report, were the Uglegorsk, Makarov and Kholm Combines. The managers of these mills were excoriated for "disrupting fulfillment of the assortment plan, endeavoring to fulfill the plan by producing articles which require less effort and expenditures and forgetting that strict fulfillment of the plan in terms of assortment is a basic state task for every enterprise."

The industry was urged to make full use of production capacities, which had operated at only about 86% of capacity. Greater stress was urged to prevent unplanned down time.

About 78% of Russia's forests are conifers, according to Alex Koroleff, in his book, "Logging Mechanization in the U.S.S.R." Total annual wood production was 27 million cords in 1920; 83.7 million in 1937 and 96.6 million cords in 1940. A current annual cut of about 250 million cords is estimated by the Food and Agricultural Organization of the United Nations.

Chemical pulpwood production in 1952, according to U.S. Pulp Producers, was 1,157 short tons in 1952, while imports totaled 13 tons.

POLAND

The wide range of printing, wrapping, board and specialty papers produced by the industry in Poland is indicative of the progress being made there. Paper production was 300,000 tons in 1950 and is scheduled to reach 530,000 tons in 1955, at the end of the Six Year Plan. Cardboard production is expected to reach 95,000 tons by 1955 in contrast with 55,000 tons in 1950.

U.S.S.R. Paper and Board Production

Year	*Production in tons*
1937	831,000
1940	812,000
1946	556,000
1947	696,000
1948	836,000
1949	995,000
1950	1,194,000
1951	1,337,280
1952	1,500,000
1953 (est.)	1,581,000
1954 (est.)	1,662,000
1955 (est.)	1,743,000

(Sources: United Nations Statistical Yearbook—1951; U.S.S.R. Information Bulletin; New York TIMES. Other sources.)

Poland embraces about 120,347 square miles and is about the size of New Mexico with a population almost 36 times that state's.

Poland's largest and most modern newsprint mill began operations early in 1954. Future plans call for an additional newsprint machine, 216 in. wide, and additional equipment from East Germany which will enable the mill to produce higher grade papers besides newsprint. On the agenda for this mill are straw pulp experiments.

CZECHOSLOVAKIA

The 1953 paper production in Czechoslovakia increased 43% over 1948. Planned increases in paper production call for a 3.2% increase and a 2% increase in woodpulp production.

HUNGARY

Paper production is expected to rise 116% during the 1950-54 five year plan, rather than the 56% originally planned. This is the result of increased production capacities effected by rebuilding and the importing of modern Soviet equipment, according to reports from a Russian journal. New enterprises are to be built, including a cellulose mill operating on waste products. 1954 production is expected to exceed 1949 production by 28,100 tons. New cigaret-paper and fine paper plants are to be constructed.

Hungary's paper industry reached and exceeded the pre-war production level even in 1948, and a translation from a Russian publication boasts that the nationalization of the industry has aided the further planned development of Hungary's paper industry.

The report claims that remarkable gains have been scored in all branches of Hungary's national economy, including the paper indus-

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try. Hungary's paper industry is said to have scored great gains in industrial output. All paper enterprises are the property of the state and the home industry is said to be capable of meeting all domestic consumption requirements.

Newsprint imports from Finland amounted to 558 tons; total paper imports from Sweden were 1,046 tons as compared with 210 tons total imports from Sweden in 1952. Swedish pulp imports totaled 1,086 tons; of which dissolving pulps were 829 tons, bleached sulfite 3 tons and bleached sulfate 220 tons.

SWEDEN'S WOODPULP EXPORTS TO ALL COUNTRIES AS COMPARED WITH EXPORTS TO THE UNITED STATES

(In Short Tons)

Years	*Bleached Sulfite*	*Unbleached Sulfite*	*Bleached Sulfate*	*Unbleached Sulfate*	*Ground-wood*	*Dissolving**
1938 (To All Countries)	304,078	571,077	92,793	575,508	297,420	
1944 (To All Countries)	156,340	710,709	13,088	70,889	10,600	
1945 (To All Countries)	262,146	49,787	43,273	536,114	314,054	
1945 (To U. S.)	56,496	283,959	28,070	274,429	27,933	
1947 (To All Countries)	445,607	530,569	136,701	462,120	223,852	
1947 (To U. S.)	40,076	218,918	56,282	201,440	12,532	
1949 (To All Countries)	578,965	530,448	197,380	496,287	284,350	
1949 (To U. S.)	42,130	129,902	70,013	106,160	7,547	
1950 (To All Countries)	632,082	609,404	250,326	501,324	312,224	
1950 (To U. S.)	49,350	99,562	89,663	103,932	12,763	
1951 (To All Countries)	601,114	526,089	267,647	455,863	326,661	
1951 (To U. S.)	30,522	51,344	71,765	58,562	6,767	
1952 (To All Countries)	490,747	406,386	248,861	352,272	296,231	
1952 (To U. S.)	26,776	61,356	72,714	41,855	12,634	
1953 (To All Countries)	385,133*	584,020	355,787	521,267	341,105	409,782
1953 (To U. S.)	45,262	79,408	106,635	65,091	14,744	3,773

** Main part of dissolving is bleached sulfite.*
Source: Svenska Cellulosaforeningen, Stockholm.

SWEDEN

On 7-Day Work Week

Population: 7,126,000; *Per capita paper consumption:* 200 lbs.

Paper mills: 52 Woodpulp mills: 134

Production (short tons)	*1953*	*1952*
Paper	1,348,000	1,200,100
Chemical woodpulp	2,743,400	2,591,600
Mechanical woodpulp	612,000	750,200
Paper exports	*637,000*	*618,000*
Woodpulp exports	2,379,300	1,778,700

Principal paper grades made: Newsprint, Kraft, Paperboard

Principal paper exports to: U.K., Germany (E & W), Belgium, Netherlands, Denmark, France, South Africa, U.S.A.

Principal woodpulp exports to: Great Britain, U.S.A., Germany, France, Italy, *Netherlands, Belgium, Brazil*

SWEDEN OCCUPIES 173,378 square miles, more than three times the area of New York state. Her greatest north-south length is 977 miles; her greatest width, 311 miles. Forests occupy 55% of her lands and over 200,000 people are employed in forest industries. About 50% of Sweden's exports are forest products. Forest ownership is distributed as follows: 25% company owned; 50% in the hands of small land owners, and about 25% government owned.

The Swedish industry ended 1953 on a very strong note and expected to continue at that same level. New records were achieved and several important developments highlight the industries activities for 1953 and 1954.

1. Considerable prosperity and remarkably stable prices characterized the last three quarters of 1953.

2. Seven large mills have now started operating on a seven day basis, patterned on the American systems, despite union opposition. Increased output of 20% and lower cost per ton production despite higher Sunday wages are reported by these mills.

3. Spurred by flexible depreciation allowances an industry-wide modernization program aimed at increased efficiency and economy of operation followed the war. An example of this, according to P. R. Sandwell of Sandwell and Co., Ltd., who visited Sweden in 1953, is that a company with high profits could charge a large proportion of depre-

LOG DRIVING IN SWEDEN. At left, load of pulpwood being hauled on sled to one of Stora-Kopparberg mills. Right, "bundling" dock where water-borne logs are strapped and stored for future use.





ciation in the year in question, leaving little to be charged off later. Mr. Sandwell also remarks that the Swedish marketing policy bears examination. "We speak of the Swedish pulp and paper industry as one. Actually there is as much difference in policy among groups within the industry as there is between Sweden as a whole and this country (Canada). Their policy has been to maintain production under any circumstances and to allow prices to rise and fall to the extent the market is able to stand it.

"As a result, before 1952, profits were extremely high. They were used to offset high depreciation allowances and export taxes imposed by the Swedish government, presumably to build up a fund to support the industry in bad times."

4. Many technical trends were noted in the Swedish industry in 1953-1954. The manufacture of machine coated papers will begin this winter at the Hafrestrom mill at Haverud on Lake Venern. The largest paper machine in Northern Europe, 70 meters long, manufactured by a company in West Germany, started up at Munkedal mill and will double that mill's capacity to 264,000 short tons annually.

Recently, Holmsunds (Svenska Cellulosa AB) in its mill at Obboia installed a 2.1 m diameter by 40 m (about 8 by 135 ft.) Unax lime kiln supplied by F. L. Smidth & Co. This is the first Scandinavian kiln fed with filter cake from a Bird centrifuge, and a heat consumption as low as about 1,780 kcal/kg, or approximately 6.9 million Btu short/tons, has been obtained. The Forest-Owners Assn. of Skane plan to build a semi-chemical pulp mill at Helgea along the Helge river, using second grade timber which is no longer merchantable.

5. Sweden will have an ice-free port and a more direct shipment route if an agreement between Norway and herself is concluded to open a better Atlantic supply line for Sweden through the Norwegian port of Trondheim.

6. Interest in continuous digestion is growing, according to reports from Sweden, stimulated by news that 33% savings in steam consumption and labor costs may be possible through the new Kamyr process.

Pulp exports increased in volume and value in the first quarter of 1954 compared with the same period in 1953. Demand for mechanical pulp continues to be strong. Market position for paper and board improved considerably during 1953. Paper and board rose from 1.09 to 1.23 million tons. All principal grades of paper showed substantial increases except newsprint. Domestic paper consumption increased by 38,500 short tons over 1952 to reach 572,000 in 1953. The outlook is very favorable in 1954 for pulp and paper with an anticipated increase in consumption of kraft, sulfite and magazine papers. The Swedish industry expects unprecedented production and record exports in 1954.

SWEDEN—Pulp Produced

(In Thousands of Short Tons)

	Mech.	*Sulfite Bleached*	*Sulfite Unbl.*	*Sulfate Bleached*	*Sulfate Unbl.*	*Total Chem.*
1937	809	514	1,290	96	1,176	3,076
1946	747	556	802	132	777	2,267
1949	700	671	757	223	828	2,479
1950	794	735	831	272	869	2,712
1951	800	772	858	319	904	2,853
1952	751	698	774	327	793	2,592
1953	612	762*	756	342**	771	2,777

Source: Svenska Cellulosaforeningen, Stockholm.
*including 332 tons dissolving sulfite pulp
**dissolving grades included

SWEDEN—Paper Produced

(In Thousands of Short Tons)

	News	*Kraft*	*Fine*	*Board*	*Total (Includes all other grades)*
1937	312	247	97	149	1,078
1946	299	269	141	149	1,120
1949	345	302	110	164	1,182
1950	358	320	111	209	1,299
1951	365	369	133	230	1,398
1952	364	306	122	157	1,200
1953	372	370	123	206	1,348

Source: Svenska Pappersbrukföreningen, Stockholm.

SWEDEN—Paper Exports

(In Thousands of Short Tons)

	News	*Kraft*	*Sulfite Wrapp'g*	*Greasepr'f Parchm't*	*Board*	*Total (Includes all other grades)*
1937	218	208	127	28	77	706
1946	133	156	62	19	77	706
1949	221	201	68	25	39	676
1950	224	273	79	30	57	803
1951	218	277	85	29	44	830
1952	229	206	47	21	38	618
1953	227	290	58	26	36	637

Source: Svenska Pappersbrukföreningen, Stockholm.

FINLAND

New Sulfite Process

Population: 4,100,000; *Per capita paper consumption:* 106 lbs.

Paper mills: 22

Woodpulp mills: Sulfite 20; Mechanical 26; Sulfate 9

Production (short tons)	*1953*
Paper (inc. board)	1,156,000
Chemical woodpulp	1,246,300
Mechanical woodpulp	759,000
Wallboard pulp	114,400
Paper exports	669,900
Woodpulp exports	
Chemical	865,700
Mechanical	224,400

Principal paper grades made: All kinds

Principal paper exports to: U.S.A., U.K., German Fed. Rep., Soviet Union, Brazil, Denmark, Argentina, India, China, Egypt

Principal woodpulp exports to: U.K., U.S.A., France, German Fed. Rep., Poland, Soviet Union, Belgium, Spain, Denmark, Netherlands

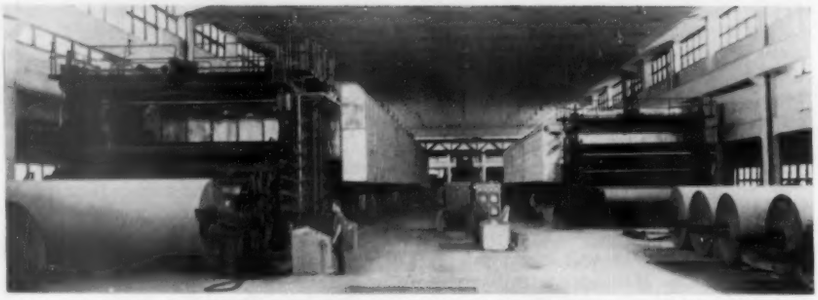
THE DOMINANT THEME in reports from our correspondents in Finland is the optimism of the pulp and paper industry as shown by the amount of modernization and expansion underway.

This is significant considering the setback experienced after the Korean armistice. Lowered prices, increased production costs and foreign competition plagued the industry—temporarily. When 1953 statistics were tabulated, the picture was not as bad as expected. Credit for this good showing is due to tax refunds from the government, improved prices and operation at full production capacity during the latter half of 1953.

These are some of the facets to be considered in an appraisal of the Finnish pulp and paper industry.



Modernization project of Oy Kaukas Ab sulfite pulp mill included this new wood preparation plant which began operations early in 1954.



Side by side at Kotka kraft mill of Enso-Gutzeit Oy are these two Beloit Iron Works paper machines. The giant on the left began operations in early 1953 and the one on the right started up in 1954. This company plans to add another Beloit at its newsprint mill at Summa, Vehkalahti Parish, on the gulf of Finland, which will be 282 in. wide, with maximum speed of 2500 fpm.

Ernest Erickson, President of Pulp Sales Corp., told PULP & PAPER that the Finnish industry has seen dark days, but that the present picture is encouraging. Sweden is withdrawing some of her pulp from the U. S. market, while Finland is not.

By Jouko Koljonen, Information Chief, Central Association of Finnish Woodworking Industries.

The heavy recession after the Korean armistice had a strong effect on the Finnish pulp and paper industry. The result was that world market prices of pulp and paper went below production costs and caused a major crisis.

The situation in the paper industry was difficult enough, but not as bad as in the chemical pulp industry, which operated at only 60% of capacity in the spring and summer. After a slight upward trend of prices in autumn, production increased and total for the whole of 1953 was 75%.

With the present cellulose producing capacity, we could turn out 1,650,000 short tons. 1953 output did not total more than 1,243,000 tons. Exports absorbed 865,700 tons; about 367,400 tons were processed for paper. Stocks were very small at the end of 1953. Largest buyers were the United Kingdom, 298,100 tons, the U. S., 116,600 tons, and France, 114,400 tons.

Many expansions are going on in the cellulose mills, the major portion to be ready in 1954. Capacity of the Kotka sulfate pulp mill, be-

FINLAND—Paper Produced

(in thousands of short tons)

	News	*Wrapping*	*Writing and Printing*	*Total Paper (Includes other grades)*	*Paperboard Cardboard Wallboard*
1937	463	121	56	669	172
1949	425	107	62	623	173
1950	460	123	86	700	237
1951	458	141	122	756	355
1952	480	136	108	755	255
1953	484	178	123	824	332

FINLAND—Paper Exports

(in thousands of short tons)

	News	*Wrapping*	*Writing and Printing*	*Total Paper (Includes other grades)*	*Paperboard Cardboard Wallboard*
1937	422	101	45	572	133
1949	384	67	43	502	101
1950	417	75	59	557	153
1951	422	87	90	609	238
1952	433	85	78	604	143
1953	443	122	94	671	206

FINLAND—Pulp Produced

(in thousands of short tons)

	Mechanical	*Sulfite*	*Sulfate*	*Total Chemical*
1937	904	1,143	483	1,626
1949	659	690	429	1,119
1950	793	791	525	1,316
1951	889	905	623	1,528
1952	797	786	488	1,274
1953	877	718	530	1,248

FINLAND—Pulp Exports

(in thousands of short tons)

	Mechanical	*Sulfite*	*Sulfate*	*Total Chemical*
1937	321	908	392	1,300
1949	176	495	343	838
1950	195	566	403	969
1951	231	655	427	1,082
1952	158	525	271	796
1953	225	511	356	867


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longing to Enso-Gutzeit O/Y, was increased in 1953 from 66,000 short tons to 99,000 tons.

In 1952, the sulfite pulp mill of Rauma-Bepola O/Y in Rauma changed over to a new 2-stage cooking process with sodium base and chemical recovery.

Newsprint exports maintained their previous level; exports of other paper grades reflect the growth of our kraft output in 1953.

The first machine started up in the new kraft paper mill of Enso-Gutzeit O/Y in Kotka last year. A second machine of same capacity, 49,500 tons, started in March, 1954 (both were by Beloit Iron Works —U.S.A.). Three new paper mills are under construction in Finland and will be completed in 1954-55.

Today, the paper and pulp markets seem to be somewhat better than in 1953 and our pulp and paper industry looks forward with hope.



Board Mills of the Finnish Board Mills Assn. are shown on this map. Total capacity is 260,-000 metric tons annually.

NORWAY

Most Pulp Since War

Population: 3,343,000; *Per capita paper consumption:* 130 lbs.
Paper and board mills: 51
Pulp mills: 29

Production (short tons)	*1953*	*1952*
Paper	555,000	515,000
Chemical woodpulp	573,000	546,000
Mechanical woodpulp	637,000	569,000
Paper imports	....	....
Paper exports	338,000	287,000
Chemical woodpulp exports	477,000	236,000
Mechanical woodpulp exports	339,000	352,000

Principal pulp and paper exports to: U. K., Belgium, France, Netherlands, U. S., West Germany

NORWAY'S 124,710 SQ. MILES occupy the western part of the Scandinavian peninsula. About one half the size of Texas, its climate, in spite of its northerly location, is relatively mild at lower altitudes due to the presence of the Gulf Stream. The forests of Norway are one of the principal natural resources of wealth. Pulp and paper rank among the principal manufactures. Its monetary unit, the krone, equals about 14¢ U.S.

The pulp and paper industry had a good year in 1953, showing a marked improvement. Pulp production was the highest since the war and totaled 588,500 short tons, 86% of capacity. The demand for chemical pulp was good, and, despite a record output, stocks have gone down.

1953 was characterized by low prices and difficult selling conditions in the first 8 months, offset by improved selling conditions and better prices from September to December.

Considerable criticism has been directed by the industry against the taxes and export levies which constitute a grave problem to an industry seeking to better its competitive position abroad. Great strides have been made to modernize and procure new equipment, but much more could have been done, according to Norwegian critics, had not the industry been forced to pay over 260 million krones in 1951 and 1952. They condemn this as a short-sighted policy which stripped the industry of funds it urgently needs to maintain its competitive status.

Norway's forest lands amount to 7.5 million hectars; productive forest area is about 6.1 million hectars. Norway's mills were not destroyed during the war, but were unable during occupation to keep maintenance of plants and equipment at a reasonable level. The immediate goal following liberation was to achieve a technically sound basis for operations.

Mills have had to refrain from the simplest and most effective road towards stronger competitive position, increased capacity. Stress has had to be on preparations aiming at reducing production costs without increased capacity by improving quality, higher utilization of waste materials, and seeking to increase total forest output by utilization of substantial quantity of "second class" materials.

Actual pulp mill capacity is 660,-000 short tons a year, requiring 90,-000 logs daily or 3,000,000 annually. 16,000 workers are employed in pulp, paper and groundwood mills. The entire wood processing industries employ 80,000 workers, providing livelihood for 200,000 people.



LARGEST MILL producing pulp and paper in Norway is this Borregaard mill at Sarpsborg.





PULPWOOD DRIVE gets underway (left) on the Fetsund River, Norway, enroute to mill of Union Pulp & Paper Co. Right, close-up of pulpwood drivers on Laagen River, which flows through Norway's largest valley, Guldbrandsdalen.

Save for the disturbing problem of high taxes, pulp and paper associations in Norway concur in an optimistic belief that future prospects are bright. They say that recent market surveys tend to prove that present brisk demands are in no way abnormal. The industry believes that sales potentials depend upon favorable conditions in other industries all over the world.

NORWAY—Paper Produced

(in thousands of short tons)

	Paper	*Board*	*Total*
1937	457	44	501
1950	485	45	530
1951	514	49	564
1952	466	49	515
1953	—	—	555

NORWAY—Paper Exports

(in thousands of short tons)

	Wrapping	*News*	*Other*	*Board*	*Total*
1937	100	195	62	25	382
1949	63	165	80	17	325
1950	82	164	85	30	361
1951	82	152	101	31	366
1952	65	131	64	27	287
1953	63	145	104	26	338

NORWAY—Pulp Produced

(in thousands of short tons)

	Mech.	*Sulfite*	*Sulfate*	*Total Chem.*
1937	599	527	82	609
1946	308	207	46	253
1950	590	449	84	533
1951	613	491	93	584
1952	569	454	92	546
1953	637	481	92	573

NORWAY—Pulp Exports

(in thousands of short tons)

	Mech.	*Sulfite Bleached*	*Sulfite Unbl.*	*Sulfate*	*Total Chem.*
1937	322	298	56	16	370
1946	91	86	2.2	5.5	94
1949	289	202	0	9	211
1950	344	236	6	16	258
1951	369	238	0	15	253
1952	352	220	0	16	236
1953	339	184	6.8	18	477

FRANCE

Sets New Records

Population: 42,000,000; *Per capita paper consumption:* 73 lbs.

Paper mills: 250; *Woodpulp mills:* 30; *Straw or vegetable fiber mills:* 45

Production (sh. tons)	*1953*	*1952*
Paper	1,573,000	1,356,300
Chemical woodpulp	259,820	214,115
Mechanical woodpulp	325,820	308,165
Straw & other pulp	57,200	45,815
Paper imports	67,100	104,500
Paper exports	84,700	83,600
Woodpulp imports	415,800	370,700
Woodpulp exports	11,880	11,000

Principal paper grades made:

Newsprint	374,000
Kraft	366,000
Straw	104,000
Book and Writing	344,000
Paperboard	311,000
Cigarette and Fine	74,000

Principal paper imports from: Sweden, Finland

Principal woodpulp imports from: Sweden, Finland

Principal paper exports to: Indo-China, Algeria, Morocco

Principal woodpulp exports to: England, Netherlands, Belgium

A CONTINUED UPSURGE in pulp and paper production created new records for France in spite of a serious recession during the first half of 1953. Other highlights from reports of French, Canadian and American observers center on the growing importance of sulfate pulp, industry-wide modernization, cooperative studies between government and industry officials to determine a definite planned program for the years ahead, and increased difficulty of the home pulp industry to cope with cheaper imports.

Reports on these lively and varied conditions in France come to PULP & PAPER from, Andre Lourdelet, president of S. A. Cartonneries Lourdelet-Maricot; Henri Jegu, vice president of the American Library of the Jegu Agency in Paris; Jean Usse of La Cellulose du Pin; also in Paris, and P. R. Sandwell of Sandwell & Co., Ltd., Vancouver, B.C., who visited France in 1953.

By Henri Jegu, Vice President, American Library, Agency Jegu.

The depression which marked 1952 also made an impression on 1953, but the year ended on a more optimistic note, justified by the recovery achievement volume-wise of production.

In general, 1953 was marked by two clearly cut periods, almost equal in length, but quite dissimilar as to results.

The first five months were months of exertions to get out of the 1952 stagnation. Production, which only once passed the peak of 132,000 short tons monthly, stayed at an average of 125,000 tons. Conversely, from June onward, production reached a decidedly higher level and stayed there, crowned by December production of 152,350 tons. Average production for this period averaged 145,000 tons; fourth quarter production was very similar to corresponding period of 1952.

Total paper and board production

FRANCE—PAPER 1953 vs 1952

(in thousands of short tons)

	1953	*1952*	*% increase*
Straw paper	104	86	20,5
Kraft Paper and other coarse	367	297	23,3
Writing, Printing	720	651	10,5
Strawboard	32	41	3,5
Other board	280	227	23,3
Thin papers, specialties	74	66	11,5
	1.577	1.359	16,0

FRANCE: WOOD PULP

(in thousands of short tons)

	Chemical		*Mechanical*	
	Produced	*Consumed*	*Produced*	*Consumed*
1938	148		230	
1949	243	531	291	371
1950	261	606	320	420
1951	305	691	349	497
1952	226	510	308	396
1953	260	590	326	408

• **Over 70 correspondents from more than 40 nations and territories sent exclusive, on-the-spot reports to PULP & PAPER for this World Review.**

for 1953 climbed from 1,353,000 tons in 1952 to 1,573,000 tons, midway between 1952 and 1952 production.

Pulp production in 1953 followed the same rhythm as paper and board; five poor months followed by seven months of increasing activity. Average monthly production, which had been 506,000 tons until May, climbed to 58,500 tons from June onward. Total production, 642,400 tons, was only slightly lower than 1951, 663,300 tons, and slightly higher than the 564,300 tons of 1952.

Compared with 1951, there was a decrease in the relative importance of groundwood production, to the benefit of chemical pulp, especially bleached.

Foreign Pulp Imports

Foreign pulp imports reached 415,800 tons, against 370,700 tons in 1952 and 532,400 tons in 1951. The main feature of these imports is the decrease of groundwood and unbleached chemical pulp, and the increase of bleached pulp. This decrease was especially noted on groundwood, 145,200 tons in 1951 or 27% of total imports; 79,000 tons in 1953, 19% of imports. By contrast, unbleached sulfite was 158,400 tons in 1951, 30% of imports; and 112,200 tons in 1953, 27% of imports. Bleached pulps rose from 117,700 tons in 1951, 22.5% of imports; to 127,600 tons in 1953, 30% of imports.

Pulp imports from Sweden and Norway had a slight drop, compared with 1952, which had already decreased compared to 1951. Imports from Canada and U.S. also followed the same pattern, while Finnish pulp, which had dropped in 1952, regained a level in 1953 comparable to that of 1951.

Projects Underway

(Symposium of reports from M. Jegu and M. Lourdelet)

Several mills are now expanding production. The more important of these are:

Cellulose de Strasbourg—Capacity has been raised to 60,500 short tons of unbleached sulfite, part of which is to be made from hardwood. Present changeover concerns bleaching about 13-20,000 tons of this production.

Cellulose d'Alizay—At year's end, this firm will complete a hardwood sulfite pulp mill, using mostly beech. 7 to 10,000 tons of its estimated production will be used by the paper mill, with the surplus being devoted to rayon manufacture.

Joint Projects of "Progil" and "Les Tanin Rey" companies—plan joint program of modernization and expansion to attain a minimum capacity of 33,000 tons of bleached chestnut pulp. In addition, "Les Tanin Rey" is changing to bleached kraft pulp production at its Couze mill, to about 16,500 tons annually.

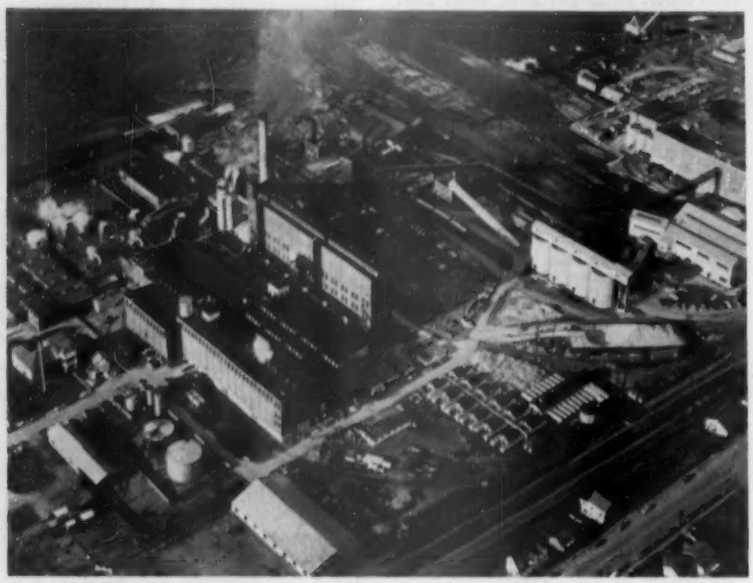
Societe Landaise des Celluloses—plans expansion of its mill at Tartas, total production to reach 30,800 tons by year's end. About 16,500 tons of this prime bleached sulfite pulp will be used for its paper mill.

Cellulose du Pin—program at this company's mill at Facture involves

FRANCE: 150 Years of Paper

Annual Production of Paper and Board (*in short tons*)

Year	*Tons*
1800	22.000
1850	55.000
1900	450.000
1914	900.000
1938	1.289.000
1949	1.260.170
1950	1.450.270
1951	1.719.950
1952	1.358.500
1953	1.576.000



Another Big Mill With Chemtile and Chemplate

Scott Paper Co., Everett, Wash., is another big new mill of many throughout the country to employ Chemtile and Chemplate construction. No. 1 machine is already running at Everett, No. 2 will be in operation before year's end, and plans have been announced for further expansion to make this the largest bleached sulfite mill in the world. We are proud of the fact that many of the tile vessels for these machines are Chemtile and Chemplate.

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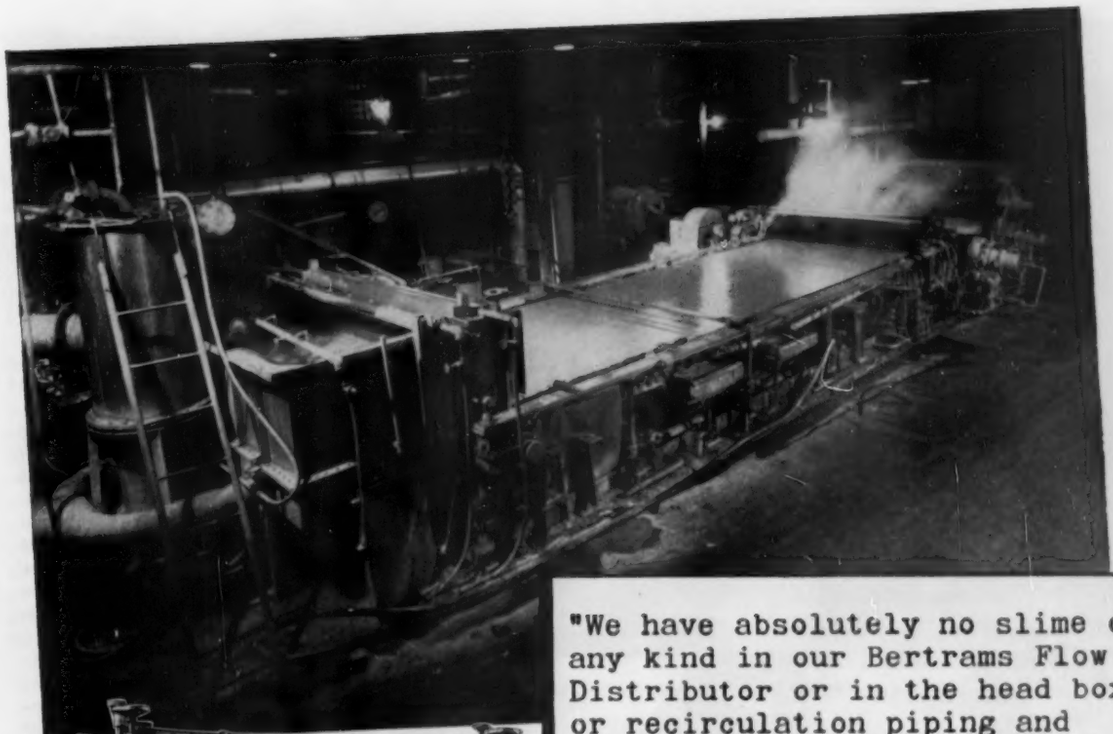
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Wire & couch pit linings

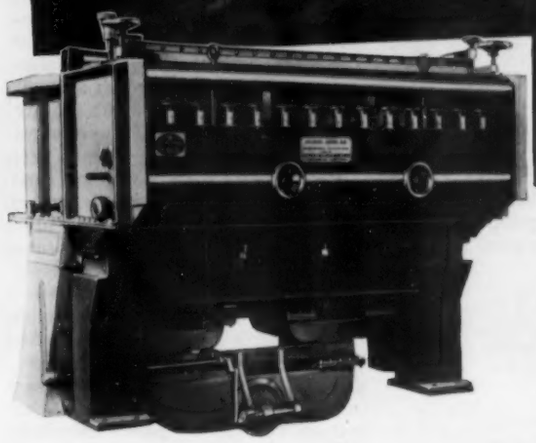
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"We have absolutely no slime of any kind in our Bertrams Flow Distributor or in the head box or recirculation piping and connections..."
Newton Falls Paper Mill, Inc.

Sandy Hill-Bertrams Flow Distributor

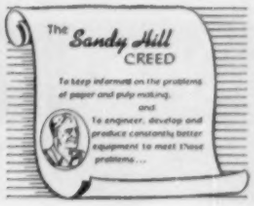
for best fiber distribution and maintenance of thorough dispersion and no slime or lumps in passages

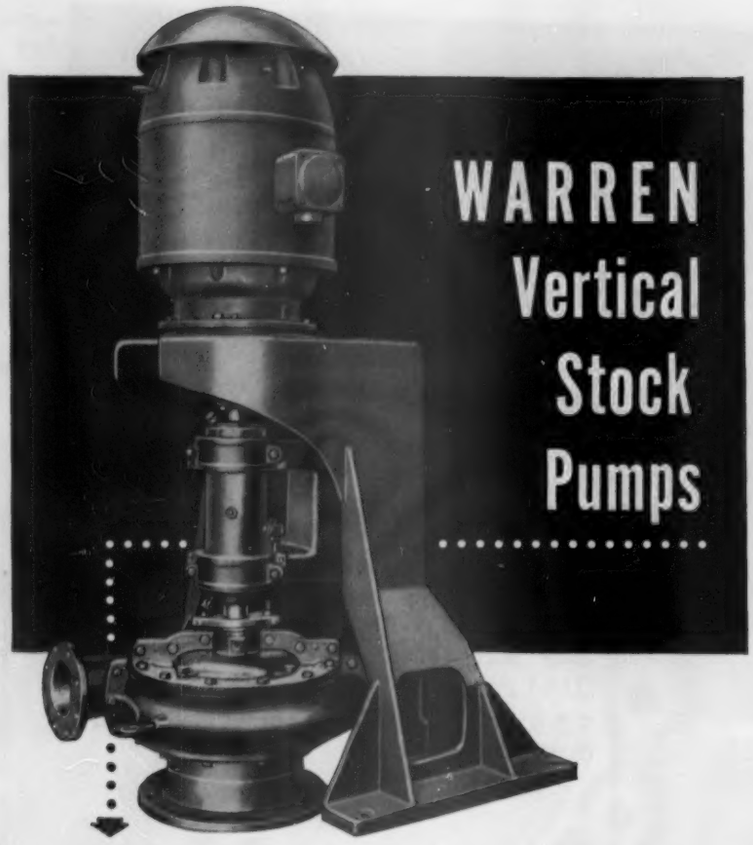
The Sandy Hill-Bertrams Flow Distributor substitutes the multiple manifold for the conventional mass flow system. Every fiber travels virtually the same distance from distributor inlet to discharge on the apron board . . . giving more even distribution of stock across the sheet. Induced turbulence prevents settling of fillers and flocculation of fibers. Result:—a more uniform sheet, constant in weight and formation, with complete freedom from slime and lumps.

Newton Falls Paper Mill, Inc., one of the industry's most modern plants, after using Bertrams Flow Distributors on two machines for more than five years, reports "no slime . . . no lumps . . . no lodgements." Nothing we can say could be as emphatic or conclusive as the actual use experience and complete satisfaction of the discriminating operators of this efficient mill.

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are recommended for certain difficult applications involving the handling of heavy or highly aerated stock requiring top suction and close proximity of pump to supply tank; also where limited space is an important factor.

The Warren Type SODV illustrated is one of four Vertical Stock Pumps built for a prominent mid-western mill, and handles 3% to 6% stock. There are three other basic designs available with several different sizes in each, for both submerged and dry-pit operation.

The same engineering features and dependable construction which has resulted in such a favorable "experience rating" on Warren Horizontal Stock Pumps, will be found in our Vertical types as well.

For instance, inevitable wear increases clearance between impeller and suction liner, reducing capacity, head and efficiency. An adjustment screw provides for reducing this clearance, which results in much less frequent replacement of liners. Also, a wide variety of experience-engineered impellers are available, with many standardized to fit the same type and size of pump.

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WARREN STEAM PUMP COMPANY, INC.
Warren, Massachusetts

raising production capacity to 15,500 tons of unbleached and bleached kraft pulp, part of which may be marketed.

Cellulose du Rhone—mill being built at Tarascon for the production of 22,000 tons of bleached esparto pulp and later of 22,000 tons of kraft pulp from hard pine, out of the "Massif Central" and the Alps, part of which is to be bleached.

Etablissements Avot-Vallee—expanding its mill at Blendecques to raise capacity to about 55 tons a day of semi-chemical straw and hardwood pulps. Part of this production will be bleached.

Other reports—In addition to the above, important achievements bearing on waste paper treatment have been made by Etablissements Dalle et Lecomte at Bousbecque (Nord), Papeteries de Ruysscher at Maresquell (Pas-de-Calais), Papeteries de Pont-Saint-Maxence (Oise) and Etablissements Catel et Farcy at Alfortville near Paris.

In the field of writing and printing papers, Papeteries du Marais has made a regroupment with Papeteries Johannot and Papeteries D'Arches, to find a way of specializing production and to reach a better competitive position with other European countries when exchanges are freed.

Paperboard manufacturers are continuing expansion with a vigor which has characterized their development since the end of the second world war.

In fact, paperboard manufacturers have developed and modernized themselves, more strongly than in the period between the two wars, and thus have not found themselves in the unfavorable position of the rest of the French paper industry.

The Cartonneries Lourdelet-Maricot, at Aubervilliers, is starting a $100,000 program to increase production and modernize equipment.

The Cartonneries de Kaysersberg has also completed considerable installations, for the making of corrugated board and for other large projects for development of their specialties.

Papeteries Navarre has just started, in the mill at Champ Sur Drac, a new board machine for the production of high quality papers from bleached sulfite pulp.

Several paperboard manufacturers have equipped or are in the process of equipping machines for continual manufacturing of corrugated board. This grade is being used by the mill of Cartonneries Beghin at Port Lyautey, Morocco.

However, free trade disturbs this

industry as it has other French industries.

By Jean Usse, Cellulose du Pin

Studies were made in 1953 by the industry in cooperation with the government to determine a planned program for the pulp and paper industry for the years ahead.

It has been claimed that domestic fiber resources could nearly double the production of unbleached or bleached kraft pulp within the next five years. This would then permit the replacement of about 100,000 tons of long, resinous fibers in sulfite or mechanical pulps, if the short fibers of the broad leaf trees or straw were used in chemical or semi-chemical pulp.

These increases in production capacity are now under way and should result in increased paper production without importing wood or pulp, which burden the French commercial balance heavily.

An appreciable increase in the use of bleached pulps in different grades of paper is reported. The percentage of bleached pulp used in paper and board went from 9.85% in 1952 to 12.16% in 1953; this percentage was 8.38% before the war.

Percentage of strong sulfite pulp also increased, although slightly, from 14.50% in 1952 to 14.65% in 1953, but this is a sharp decrease when compared with pre-war figures of 20.26%.

Soda pulp use increased from 11.85% in 1952 to 12.36% in 1953, which before the war was about 8.07%.

This increase of bleached pulps and strong soda pulps took place at the expense of mechanical pulp, which went from 29.67% to 25.90%. Before the war this was about 26.73%.

Sandwell's Report

P. R. Sandwell, Vancouver, B.C. paper mill consulting engineer, who toured Europe last year, had this to say about the French industry:

"In France, the industry is a paper industry, depending on pulp imports. The basic technical problem is a shortage of raw materials for their forests are small, and located mostly in the foothills of the Alps and in the Bordeaux, where plantation forests appear.

"Traditionally, France depends on Scandinavian woodpulp, which she buys at world prices. French papermakers now have to reconcile these prices with their foreign exchange difficulties and the fact that they are still selling on a controlled market.

"This had led to some attention being devoted to the manufacture of pulp from straw. The use of straw pulp, however, is limited. It is a short-fibered material of little strength, unsuitable for bags, which require structural strength and newsprint, which is produced at high speed and requires strength during manufacture.

"The French paper industry is not as modern as it might be because many mills are old and present economic conditions do not justify replacement and the relatively modern plants built before the war were not properly maintained or improved extensively since the war due to lack of capital."

SWITZERLAND

Four New Machines

Population: 4,850,000; *Per capita paper consumption:* 126 lbs.
Paper mills: 17 *Wood pulp mills:* 1

Production (short tons)	*1953*	*1952*
Paper	219,000	225,000
Chemical woodpulp	77,000	85,000
Mechanical woodpulp	88,000	88,000
Paper imports	11,448	21,133
Paper exports	5,422	2,369
Woodpulp imports	27,366	46,673
Woodpulp exports	4,958	942

Principal paper imports from: Germany, Austria
Principal woodpulp imports from: Sweden, Finland, Austria, Canada
Principal paper exports to: Italy
Principal woodpulp exports to: Italy, France

THE SWISS PULP and paper industry just about held its own in 1953; production dipped slightly in chemical woodpulp and paper, but maintained the same level in groundwood production. Four new paper machines were installed in as many mills.



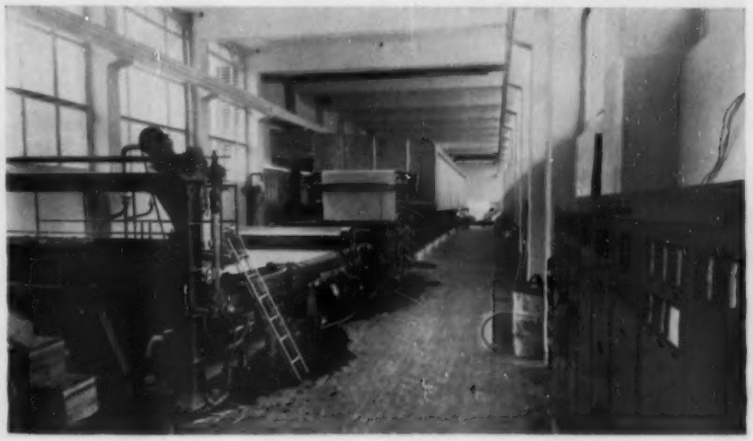
ALBERT ZIEGLER (left), great-grandson of founder of Albert Ziegler Paper Mills at Grellingen, Switzerland, runs the Albert Ziegler Paper Mills today. SIEGFRIED H. AESCHBACHER (right), Manager of Balsthal Paper Mills, again sends in a report on the Swiss pulp and paper industry.

Siegfried H. Aeschbacher, manager of Balsthal mills of Switzerland, sent a report to PULP & PAPER on the Albert Ziegler Paper Mills at Grellingen.

"The Albert Ziegler Paper Mills at Grellingen were founded in 1859 by Joseph Ziegler-Thoma. The mills are run today by Albert Ziegler, a great-grandson of the founder.

"The mills were set up along the river Birse. These mills are run on the most modern lines and their annual production is about 13,200 short tons. They have two paper machines. One is a modern fine paper machine, newly installed in 1953, product of Bruderhaus Co., Reutlingen, Germany. This machine has a trim of 92 in. and speeds up to 720 fpm and is equipped with a stock preparation of modern princi-

This new machine at Albert Ziegler Paper Mills at Grellingen trims 92 in. and runs at speeds up to 720 fpm; is equipped with stock preparation of modern principles, partially built on licenses of E. D. Jones & Sons, Pittsfield, Mass.





ples, partially built on license of E. D. Jones & Sons, Pittsfield, Mass.

"The new machine has made it possible for the Albert Ziegler Mills to extend considerably their manufacturing program, which is varied and consists mainly of wood-free papers such as papers for deeds, note paper and typing paper, paper for offset printing and the publishing business in general.

"Apart from this new machine at Grellingen, the following mills in Switzerland have installed and put into operation during 1953 new paper machines:

"Biberist Paper Mills, which installed one machine for making printing paper;

"Deisswil Paper Mills, one board machine for producing wrapping paper, and

"Deisswil Paper Mills, one board machine."



ALBERT ZIEGLER PAPER MILLS at Grellingen, Switzerland, are run on most modern lines; annual production is about 13,000 short tons of fine papers.

NETHERLANDS

Biggest Paper Year

Population: 10,426,000; *Per capita paper consumption:* 105 lbs.

Paper Mills: 20; *Strawboard Mills* 19

Production (short tons)	*1953*	*1952*
Paper (incl. board)	424,562	363,880
Chemical pulp	33,000	37,000
Mechanical pulp	63,000	63,000

Newsprint exports principally to: Belgium, West Germany, U.K., Argentine, Brazil, India

Pulp imports principally from: Sweden, Norway, Finland, West Germany

NETHERLAND PAPERMAKERS (not including strawboard) broke the nation's production records in 1953 with a total of 424,493 short tons. This was 60,500 tons better than 1952 production, an increase of 16%. Strawboard manufacturers made an additional 300,000 tons. Strawpulping is a major industry in this country.

A report on the major paper manufacturer in the Netherlands comes to PULP & PAPER from Eli de Vries of E. de Vries Co., who maintain their European office at Amsterdam. He said:

"There are about 20 paper mills in the Netherlands, of which Van Gelder Zonen N.V. with their five paper mills are far away the largest. About 50% of the whole Netherland output is produced by them. In 1784 this company started with one mill, which expanded to a large wrapping paper mill. The mills producing free and groundwood printing and writing papers are located in Apeldoorn and Renkum and a second mill in Renkum, as well as the big mill in Velsen on the North Sea Canal, specialize in newsprint, of which van Gelder is the only Dutch manufacturer. The company also owns two pulp mills and two

THE NETHERLANDS
(Pulp Consumption in Short Tons)

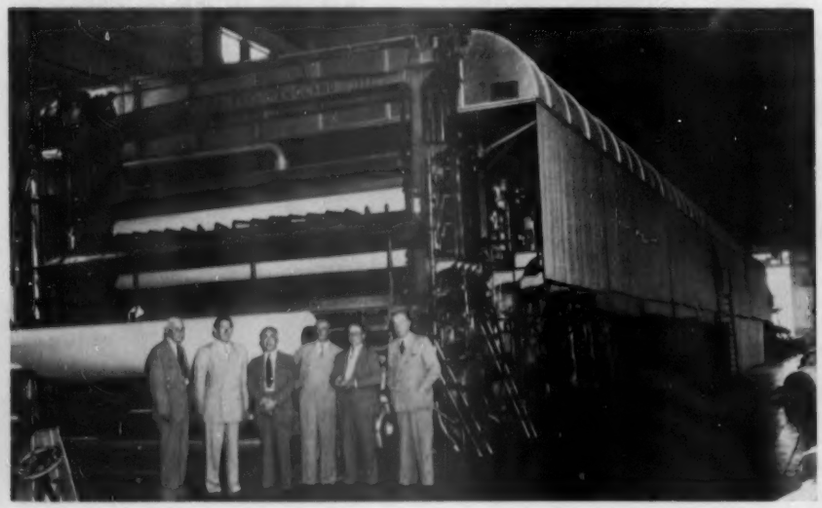
	Ground Wood	*Chemical Woodpulp*	*Waste Paper*	*Rags*
1938	157,128	65,333	58,636	9,398
1939	15,131	81,525	71,193	10,055
1946	41,846	72,527	11,556	60,095
1948	80,997	102,157	105,108	142,983
1949	80,384	115,208	91,688	17,604
1950	90,100	136,070	97,570	193,604
1951	60,000	36,000	—	—
1952	63,000	40,000	—	—
1953	63,000	33,000	—	—

NETHERLANDS—Pulp Produced
(In Thousands of Short Tons—
U.S. Pulp Producers Assn.)

	Sulfite	*Mech.*
1949	35	42
1950	40	66
1951	38	64
1952	37	63
1953	33	63

THE NETHERLANDS—Strawboard
(In Short Tons)

	Produced	*Consumed*	*Exported*
1951	357,500	112,000	240,000
1952	231,000	87,560	140,000
1953	300,000	NA	NA



LARGEST FOURDRINIER in the Van Gelder Zonen N.V. paper mills in the Netherlands is this 220 in. machine at Velsen mill, which specializes in newsprint. Dwarfed by the giant machine are CHARLES BEUKER, Director, van Gelder Zonen, N.V.; ELLIS BONNET, at that time U.S. Consul in Amsterdam, WILLEM SMIDT van Gelder, Director van Gelder Zonen N.V., JESSE VAN WICKEL, former U.S. Consul General in the Netherlands; ELI DE VRIES of E. De Vries Co., van Gelder's U.S. representative; and Mr. SMIT, retired Mill Manager of van Gelder Zonen N.V.



an Original

For many reasons — no two paper machines are identical as to design and construction — to emphasize one reason only — each paper mill has its individual needs or requirements of a paper machine — and it's custom-built, *an original.*

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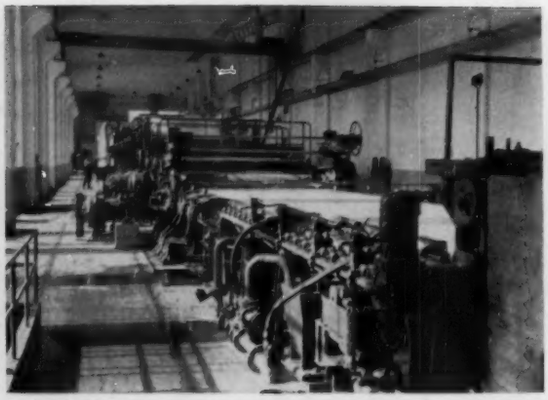
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LOTS OF MILLS IN THE NETHERLANDS—pulp, paper and windmills. Windmills (left) for centuries have served to pump superfluous water out of the fertile land into surrounding canals. They are gradually being replaced by modern pumping stations.



Pulp mills, too, are being modernized. At right, "Sove," 40-ton a day bleached straw pulp mill at Arnheim, which uses Caldecor-Pomilio continuous soda-chlorine process.

Windmill photo courtesy Netherlands Information Bureau.

THE NETHERLANDS—Paper Production (Not Inc. Strawboard)

(In Short Tons)

	News	*Book & Writing With Woodpulp*	*Book & Writing With Woodfree*	*Kraft Paper*	*Board*	*Other*	*Total*
1938 ...	97,329	8,655	47,248	84,655	18,103	23,645	279,635
1948 ...	78,746	17,233	36,074	107,396	24,758	23,875	304,571
1949 ...	81,737	17,470	55,207	104,529	20,589	30,630	310,162
1950 ...	87,680	20,240	66,550	116,500	30,250	29,480	350,900
1951 ...	100,980	26,180	79,090	168,310	*	29,590	404,470
1952 ...	106,700	32,670	67,200	128,800	*	27,680	363,880
1953 ...	106,792	42,147	81,431	166,257	*	27,935	424,562

* Included in preceding column.

groundwood mills to provide its own raw materials.

"Van Gelder Zonen N.V. now have 20 paper machines, including two cylinder machines making deckle-edge Old Dutch paper and fine boards.

"The Fourdrinier machines include an 180 in. wide Yankee, which was installed in 1952 at Wormer and is fitted with an M.G. cylinder of 17 ft. diameter, the largest such cylinder in any paper mill in the world. This machine is used exclusively for making thin wrapping papers, both sulfate and sulfite.

"The biggest of the Fourdriniers is the 220 in. wide newsprint machine in the Velsen mill.

"Having their own groundwood mills enables both newsprint mills, Renkum and Velsen, to make a product equal to the highest standards as regards printing qualities. These of course, depend to a great extent on the system used in grinding, which van Gelder Zonen N.V. fully control as a result of owning their own groundwood mills. The grinding system has been scientifically improved in recent years until it practically has reached a state of perfection.

"Due to continued demand, especially of newsprint, the company's production rose from 168,000 tons in 1952 to a record 189,500 tons in 1953. Important exports of the company's mills, which operated at full capacity, went to Belgium and Luxembourg. Substantial expansions are expected to increase output by 15% in 1956. Among these improvements will be a new newsprint machine.

AUSTRIA

Continues to Expand

Population: 6,934,000; *Per capita paper consumption:* 42 lbs.

Paper mills: 56 *Pulp mills:* 44

Production (short tons)	*1953*	*1952*
Paper	394,000	346,000
Chemical woodpulp	324,380	285,732
Mechanical woodpulp	140,800	101,443
Paper Exports	182,600	134,231

Principal exports to: West Germany, Italy, France.

Principal imports from: Germany, Sweden, U.S.

AUSTRIA'S PULP and paper industry increased its production 20% last year with U.S. aid, and looks forward to doubling its output in the next few years. This would be accomplished, not by the addition of more new mills, but by anticipated full capacity operation of her mills and by modernization. Her mills fluctuated between 62% and 90% capacity operation last year.

The pulp and paper industry has made a substantial contribution to Austria's economic recovery. As detailed in this WORLD REVIEW section last year, United States funds were concentrated on rehabilitation efforts on Austria's pulp and paper industry.

Chemical pulp production reached 290,000 tons in 1953; more than a third going to export. Austria's 1957 capacity is expected to reach 350,000 tons of chemical pulp and 130,000 tons of mechanical pulp.

West Germany is the most impor-

AUSTRIA—CHEMICAL PULPS (in thousands of short tons)

	Sulfite Unbleached	*Sulfite Bleached*	*Kraft Unbleached*	*Dissolving*
1937:				
Production	151	118	25	—
Consumption	79	41	14	—
1948:				
Production	86	47	15	23
Consumption	63	36	13	14
1951:				
Production	111	103	25	58
Consumption	66	75	14	40
1952:				
Production	118	91	25	48
Consumption	73	72	14	36
1953				
Production	127	191	40	55
Consumption	82	125	27	N.A.

N.A.—Not available

AUSTRIA—PAPER (in thousands of short tons)

	Newsprint	*Book and Writing*	*Kraft Paper*	*Other Paper Grades*
1937:				
Production	70	121	63	
Consumption	30	42	54	
1948:				
Production	70	69	17	50
Consumption	31	49	12	37
1951:				
Production	84	110	14	78
Consumption	31	56	14	50
1952:				
Production	82	109	85	
Consumption	27	57	56	
1953:				
Production	92	N.A.	N.A.	
Consumption	31	N.A.	N.A.	

AUSTRIA—PULP and PAPER
(in thousands of short tons)

	Paper	*Board*	*Mechanical Pulp*	*Chemical Pulp*
1937:				
Production	255	70	106	294
Consumption	126	34	85	135
1948:				
Production	208	50	76	172
Consumption	130	41	77	128
1951:				
Production	287	74	116	299
Consumption	153	55	110	197
Exports	134	18	6	97
1952:				
Production	276	70	101	285
Consumption	142	50	102	189
Exports	134	19	5	90
1953:				
Production	326	68	140	324
Consumption	143	45	129	212
Export	182	23	10	112

tant customer for Austria. Export demand for newsprint was so great that orders were accepted on a deferred delivery basis, even though most paper mills were operating on three shifts.

Two new pulp and paper mills began operations in 1953, producing sulfate pulp for the first time since the war. The Neusiedler A. G. fuer Papierfabrikation mill at Stuppach, Lower Austria, will divert its entire production, believed to be about 40,000 tons, into high quality paper.

A second mill, at Nettingsdorf, with rated capacity of about 35,000 tons will export about half of its production and use the other half itself for making kraft paper.



AUSTRIA gathers logs in its province of Salzburg, for that country's rehabilitated pulp and paper mills, against backdrop of towering mountains.

BELGIUM

Good Year, After All

Population: 8,750,000; *Per capita paper consumption:* 95 lbs.

Paper mills: 27 *Woodpulp mills:* 5

Straw or vegetable fiber mills: 1

Production (sh. tons)	*1953*	*1952*
Paper	307,833	281,842
Chemical woodpulp	36,733	34,455
Mechanical woodpulp	58,258	54,571
Straw & other pulp	2,475	4,270
Paper imports	152,841	110,147
Paper exports	54,680	48,660
Woodpulp imports (mech.)	29,498	37,180
Woodpulp exports (mech.)	13	——

Principal paper grades made: Newsprint, Kraft, Sulfite, Book and Writing, Paperboard, Tissue, Fine

Principal paper imports from: Netherlands, Sweden, Finland, Norway, Germany, France, Great Britain

Principal woodpulp imports from: Sweden, Finland, Norway, Canada

Principal paper exports to: Netherlands, Germany, Sweden, Great Britain, France

Principal woodpulp exports to: France, Germany, Great Britain

PRUDENT OPTIMISM, modified by two factors, characterizes the pulp and paper industry in Belgium. The two factors are the high salaries in comparison to other European competitors and the off and on again influx of imports from Holland, which enter Belgium duty free. Belgium also experienced the recession which bothered other nations, but when total figures were in, 1953 was a pretty good year after all. Here are a few encouraging statistics:

Paper production exceeded 1952 by 8.5%, and exceeded the pre-war records of 1937-38-39 by 21%. Imports bettered 1952 by 33% and average of 1937-38-39 by 46.2%. Exports were a walloping 159% over 1937-38-39 and 8.1% above 1952. Paper consumption was 20.3% above 1937-38-39 and 16.5% above 1952.

By William F. Boks
Administrator, Gross & Irgens, Antwerp

The recession of 1952 continued during the first half of 1953 and selling prices for paper were almost

BELGIUM—PAPER
(in thousands of short tons)

Production	*News*	*Book and Fine*	*Wrapping and Coarse*	*Total Paper*	*Paper Board*	*Total Paper and Paperboard*
1939	52	85	85	235	26	261
1948	48	98	87	245	26	271
1949	55	96	92	257	22	279
1950	68	105	113	304	23	327
1951	67	93	120	304	54	358
1952	58	75	90	246	36	282
1953	61	79	117	270	37	308



EUROPE

below production cost.

Wholesalers, retailers and consumers continued to live upon their stocks until depletion followed by a sharp increase in demand about mid-1953, which allowed all mills to work at full capacity and also brought a definite improvement in paper prices.

Financial results of 1953 were good for most mills, permitting distribution of substantial dividends or the writing off of losses sustained during the 1952 recession.

Production at full capacity continues in 1954 and prospects are favorable; all mills being fully booked for several months ahead.

However, the fundamental fact remains that the Belgian paper industry is working under difficult circumstances, owing to the very high salaries prevailing in our country which have recently again been increased.

In Holland, wages are considerably lower, but the competition from Dutch papers which enter Belgium free of duty under the Benelux agreement, has eased temporarily due to Dutch mills being fully engaged.

This competition, so disastrous in 1952, might return at the first signs of recession and the Belgian paper industries are taking precautions against this eventuality by modernizing equipment to cut production costs.

This progressive policy is best illustrated by the fact that three large new paper machines have recently been ordered; one for newsprint, ordered in England, with a width of 244 in., a speed of 1,968 ft. per min., and scheduled production of 66,000 tons per annum; one for kraft paper ordered in Sweden, and one for fine papers, details of which are not yet disclosed.

BELGIUM—PULP
(in thousands of short tons)

	Production		Consumption	
	Chem.	*Mech.*	*Chem.*	*Mech.*
1939.....	28	36	155	65
1949.....	20	42	116	75
1950.....	31	50	144	88
1951.....	43	60	196	91
1952.....	34	55	100	68
1953.....	36	58	123	75

BELGIUM—PAPER
Consumption (short tons)

	Newsprint	*Total Paper & Paperboard*
1936.....	89,300	296,000
1949.....	77,100	346,800
1950.....	85,400	410,300
1951.....	87,700	407,400
1952.....	79,500	343,310
1953.....	90,820	405,994



WILLIAM F. BOKS, Administrator for Gross & Irgens, again reports on Belgium for PULP & PAPER readers.



FERDINAND DELCROIX (left) is Chairman of Board of Papeteries, Delcroix, S.A., Nivelles, Belgian makers of vegetable parchment. FERNAND GROSS (right) is Director of Gross & Irgens, international pulp sales organization.

PORTUGAL

Start New Mill

Population: 8,441,312; *Per capita paper consumption:* 16.8 lbs.

Paper mills: 17; *Woodpulp mills:* 2

Production (short tons)	*1953*	*1952*
Paper	41,361	44,230
Chemical woodpulp	7,745	8,000
Paper imports	29,417	33,785
Paper exports		
Woodpulp imports	22,121	16,437
Woodpulp exports	4,929	3,097

Principal paper grades made:

Newsprint	1,758
Kraft	2,200
Sulfite	66
Book and Writing	10,238
Paperboard	4,322
Tissue	165
Cigarette and Fine	385

Principal paper imports from: Sweden, Austria

Principal woodpulp imports from: Sweden, Finland

Principal woodpulp exports to: England, France, Belgium

STATISTICS ON THE Portuguese pulp and paper industry came from Eduardo Rodiques de Carvalho, Portuguese industrialist and head of the Portuguese Cellulose Co. (Companhia Portuguesa de Celulose), whose new pulp and paper mill at Cacia is believed to have begun operations in 1953. In June 1954 this company increased its authorized capital from $2,100,000 to $5,250,000.

PORTUGAL—PRODUCTION
(In Short Tons)

	Chem. Woodpulp Production	*Paper Production*
1951	7,400	44,230
1952	7,400	35,000
1953	7,745	41,361

Portugal's chemical pulp capacity increased from 8,000 in 1952 to 10,000 tons in 1953, all of unbleached sulfite. Actual production in 1953 was 9,000 tons, while consumption increased to 20,000 tons chemical pulp and 3,000 tons mechanical pulp. No mechanical pulp is being made in Portugal at this time.

The Caima Pulp Co. at Quinta do Caima, Albergaria-da-Nova, according to last reports, is doubling its production of eucalyptus woodpulp. This unique specialty quality sulfite pulp is sold all over the world, and is in demand because its short fibers are excellent for blotting papers and high grade printing papers where extra opacity and brightness are needed.

SPAIN

Using Esparto and Straw

Population: 28,306,000; *Per capita paper consumption:* 20 lbs.

Production (short tons)	*1953*	*1952*
Paper	200,023	212,648
Pulp	143,207	195,641

Principal pulp and paper imports from: Sweden, Norway, Finland

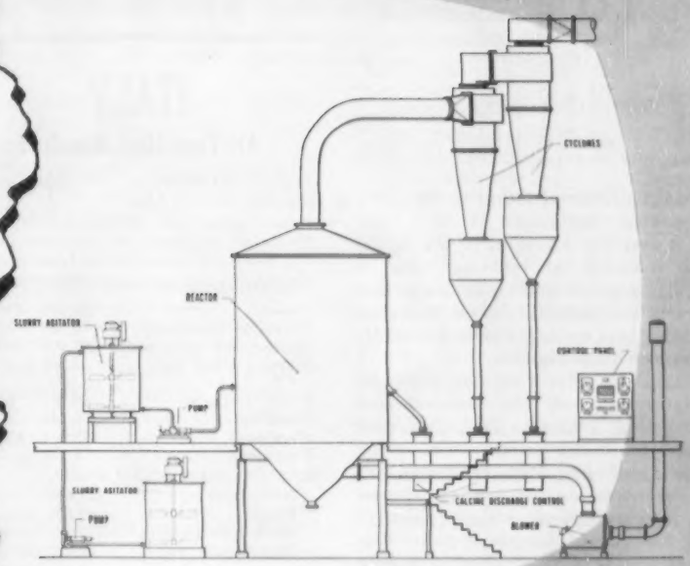
PAPER RANKS as one of the most important industries in Spain and the industry is striving for greater utilization of home grown fibers for the production of pulp, especially esparto grass. Previously exported to England, the entire esparto grass crop is now bought by the Spanish mills. In certain grades of paper, a blend of esparto and straw pulp with woodpulp has produced supe-



ANTONIO DE SABATES, Gen. Mgr. of Spain's biggest paper industry, La Papelera Espanola.

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*That is, if you're not bothered by weekend or other startups and shutdowns of the sulfur burner. If you are, the FluoSolids Process will also stand investigation. To shutdown an FS System it is only necessary to stop feeding and stop the blower. The fluidized bed subsides and the reservoir of heat is sufficient to bring the Reactor back to roasting temperature by simply starting the blower and feed. Reactors have been down for three days and started up again within half an hour without adding fuel.

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SPAIN—PULP PRODUCTION

(In Short Tons)

	Sulfite	Kraft-Soda	Ground-wood	Straw	Total
1935	11,025	—	16,537	6,615	34,177
1949	65,210	4,504	21,353	12,224	103,293
1950	101,883	5,587	25,536	13,859	146,866
1951	103,143	6,123	28,550	20,915	158,731
1952	119,020	6,820	37,171	32,630	195,641
1953	56,334	14,234	43,137	29,502	143,207

rior qualities not found in the 100% imported woodpulp.

It was this foresight of the Spanish industry, in building mills to utilize esparto and straw pulp, that saved the industry when currency restrictions caused a severe curtailment on pulp imports.

Modernization of existing mills and expectations of new mills carried over from 1952 into 1953. Two new digesters under construction at the straw mill of La Papelera Espanola's in Valencia are believed to be now in operation with a daily capacity of 20 tons of bleached pulp. This company is also completing a new 100 tons a day bleached and unbleached kraft pulp mill at Galicia.

Estimated newsprint capacity of Spanish mills is about 44,000 tons; but actual production dropped from 25,550 tons in 1952 to 23,166 tons in 1953.

Spain imported 4,506 tons of newsprint from Sweden in 1953, 443 tons of sulfate wrappings and 360 tons of sulfite wrappings. Paperboard imports from Sweden totaled 91 tons.

Pulp imports from Sweden totaled 46,875 tons, including mechanical and chemical pulps. Mechanical pulp imports were 8,114 tons, sulfite pulp amounted to 28,446 tons and sulfate pulp imports totaled 12,157 tons.

SPAIN—PAPER PRODUCTION

(In Short Tons)

	Fine	Tissue	Newsprint	Kraft	Paperboard	Printing Paper	Total
1935	15,435	2,756	8,820	7,717	44,100	154,350	233,178
1949	54,494	1,653	19,536	4,762	23,686	96,631	156,665
1950	12,429	2,205	22,020	5,179	29,038	117,317	189,292
1951	13,115	2,415	25,270	6,100	32,500	122,350	201,750
1952	13,410	2,750	25,550	10,536	36,448	123,957	212,648
1953	15,378	1,663	23,166	11,743	55,352	85,064	200,323

ITALY

All-Time High Reached

Population: 48,800,000; *Per capita paper consumption:* 32 lbs.

Paper mills: 438 *Woodpulp mills:* 8
Straw or vegetable pulp mills: 38
(16 chem., 22 semi-chem. from straw)

Production (short tons)	*1953*	*1952*
Paper	731,500	648,450
Chemical woodpulp	89,760	88,000
Mechanical woodpulp	165,000	159,500
Straw & other pulp	40,260	28,380
Paper imports	58,784	27,403
Paper exports	5,445	24,156
Woodpulp imports	192,964	131,947
Woodpulp exports	3,139	3,337

Principal paper grades made:

Newsprint	127,600 tons
Kraft	63,800 tons
Book and writing	215,600 tons
Paperboard	94,600 tons

Principal paper imports from: Austria, Sweden, Finland

Principal woodpulp imports from: Austria, Sweden, Finland

Principal paper exports to: Middle East

A PER CAPITA consumption jump from 22 to 32 lbs., an increase in paper and board production of 13%, and greater competition from Scandinavian and Austrian mills dominate the news from Italy in 1953.

The Italian paper industry, considered the birthplace of the European industry, has undergone the largest industrial development in Italy in the last 50 years, writes Comm. Guglielmo Turini, president of Associazione dei Fabbricanti de Carta ed Affini, in Rome, and general manager of Cartiere Miliani, Fabriano.



REPORT FROM ITALY is furnished by GUGLIELMO TURINI (left), Pres. of Assn. of Paper Mfrs., Rome, and Gen. Mgr., Cartiere Miliani di Fabriano, and DR. PIETRO GHISONE (right), Tech. Dir. of Pulp and Paper Operations, Cartiera Vita Mayer & Co., Milan.

He points out that some papers have been found in the archives of Fabriano identified with the year 1233, definitely indicating that paper was made there early in the 13th century, and also that watermarking began with the Fabrianese, since Oriental papers manufactured from the 10th to the 14th century are unwatermarked.

From these early beginnings the Italian industry developed to the point where in 1937 it was producing more than 500,000 tons of paper and board annually. Things were changed with World War II.

"During World War II," says Mr. Turini, "the paper industry of Central and South Italy suffered huge damages; at the close of the conflict more than 70% of its plants in those areas had been utterly destroyed. Their reconstruction was carried out at record speed, and the production data for 1953 clearly show



SINCE 14th century, this stamping mill for pulping rags has been in operation at Fabriano mill of Cartiere Miliani, oldest exiting paper mill in Europe.

ITALY—WOODPULP

(Short Tons)

	Chemical Pulp for Paper & Board: Dissolving	Chemical Pulp for Paper & Board	Mechanical	Total Woodpulp
1937	0	31,010	161,766	192,776
1940	17,956	— (?)	163,397	(?) —
1947	17,613	40,958	106,288	164,859
1949	47,829	59,769	119,213	226,811
1950	48,141	60,296	140,873	249,310
1951	58,986	93,365	155,278	307,629
1952	57,332	85,979	156,726	300,037
1953	36,200	106,920	162,845	309,585

ITALY—PAPER PRODUCED

(In Short Tons)

	Newsprint: Produced	Newsprint: Consumed	Kraft Paper: Produced	Kraft Paper: Consumed	Other Paper & Paperboard: Produced	Other Paper & Paperboard: Consumed
1938	82,687	84,362	31,972	32,028	413,437	411,182
1950	94,705	98,233	44,100	45,203	396,900	410,792
1951	115,270	117,758	60,406	63,492	454,870	408,574
1952	123,503	129,897	58,973	63,272	467,329	458,731
1953	127,600	150,920	59,400	67,100	546,700	565,440



ON ROLLING HILLS of Fabriano, where Italian paper industry was born in 13th century, is modern mill owned by Cartiere Miliani.



AT PIORACO, nestled in sharply contrasting, steeply pitched hills, is another mill of Cartiere Miliani.

that Central and South Italy, besides regaining its pre-war position, finds itself in a phase of growing development and improvement.

"In fact, besides reconstruction activity, a prodigious amount of work, aiming at the establishment of modern plants, has been or is going to be completed. In this connection, we mention, by way of example, the new paper manufacturing plant, with equipment made in the U.S., for the "Celdit" concern in Chieti, put into operation in 1952, as well as the new and large plants of Cartiere Miliani, in Fabriano, and Cartiere Tiburtine, in Tivoli. Both these latter plants are in a state of well-advanced construction, and will begin operations in a short time."

The Italian industry has rebuilt to the point where in 1953 production topped 1937 figures with an all-time high of 731,500 tons. Mr. Turini feels that Italian per capita consumption of paper and paper products is still much too low, so that further production progress in the country may be expected.

Report from Dr. Ghisone

Another interesting report on the industry comes to PULP & PAPER from Dr. Pietro Ghisone, technical director of pulp and paper operations of Cartiera Vita Mayer & Co., Milan, Italy, in cooperation with Paper Makers Association of Northern Italy, who was featured speaker at the 1953 Alkaline Pulping meeting in Houston, Tex., U.S.A. He wrote:

"Total national production for papers and paperboard in 1953 was 731,500 tons, an increase of about 13% over 1952. This increase, however, is still much less than actual capacity, made possible through modernization of many mills.

"It is doubtful if this increase will continue in 1954, inasmuch as 1953 was a general elections year when much paper was used. 1952 was also the lowest production year since 1938.

"At the present time, greater competition from Scandinavian and Austrian mills have invaded the Italian market with a corresponding increase in imports, totaling about 55,000 tons in 1953, a 276% rise over 1951, while exports dropped to 5,500 tons.

"The following table graphically depicts this reversal trend in exports and imports:

ITALY—Paper Imports-Exports
(in short tons)

Year	*Import*	*Export*
1948	28,519	17,042
1949	28,480	15,035
1950	31,911	15,316
1951	19,935	57,692
1952	23,540	20,679
1953	54,736	5,445

"These changes are mainly due to liberalization of foreign trade regulations by the Italian Government, while most of the other nations did not keep the OECE agreements, and instead of liberalizing made more restrictions. For instance, before restrictions were imposed by the English Government, Italian imports to the sterling area were about 60% of total paper exports."

YUGOSLAVIA

Industry Makes Strides

Population: 16,850,000; *Per capita paper consumption:* 30 lbs.

Production (short tons)	*1953*	*1952*
Paper	70,000	62,000
Chemical Pulp	39,000	38,000
Mechanical woodpulp	21,000	17,000
Chemical woodpulp exports	11,000	5,000

Principal paper grades made: Cigaret, colored covers and packing paper
Principal paper imported from: Austria, Finland
Principal woodpulp imports from: Austria, Germany (East and West), Czechoslovakia
Principal pulp exports to: Argentina, England, Germany, Italy and Trieste

TERRIFIC STRIDES are reported to have been made in Yugoslavia's rehabilitated pulp and paper industry and the country is an active exporter of certain specialty grades. Paper exports in 1953 totaled 3,500 tons, mostly cigaret paper. Newsprint imports amounted to about 18,000 tons, mostly from Austria and Finland.

YUGOSLAVIA—PULP-PAPER
(In Thousands of Short Tons)

	Production			*Exports*
	Sulfite Pulp	*Mech. Pulp*	*Paper*	*Sulfite Pulp*
1951	34	22	60	2
1952	39	21	62	7
1953	39	21	70	11

Yugoslavia is expected to be completely self-sufficient concerning her newsprint needs when a new mill at Viden Krsko is completed about mid-1955. Annual production is estimated about 20,000 tons on a special machine of an estimated 1,100 fpm speed. Raw material will be from the especially abundant coniferous forests near the mill.

In Maglaj, Bosnia-Hercegovina, a new kraft paper plant is in process of being built. And in Loznica, a new cellulose plant is planned, with 24,000 tons per year capacity. Most production will be of viscose fibers, but a portion will be for paper use.

Postwar exports of Yugoslavia pulp met with favorable reception by foreign buyers because of their quality. Some buyers were said to have declared that "second grade" pulp from Yugoslavia was equal, if not better than "first quality" pulp of other Central Eropean countries.

ERIE

Imports Exceed Exports

Population: 2,948,000; *Per capita paper consumption:* 50 lbs.

Paper mills: 4 *Board mills:* 2

Production (short tons)	*1953*	*1952*
Paper	12,000	12,359
Mechanical woodpulp	9,000	10,000
Paper imports	79,291	52,848
Paper exports	22,068	
Chemical pulp imports	23,000	12,000
Mechanical woodpulp imports	3,000	1,000

Principal paper imports from: Great Britain, Sweden, Finland, Canada.
Principal paper exports to: Great Britain, U.S.

THE EMERALD ISLE is about three times the area of New Hampshire with about ten times the population.

In spite of heavy duties on paper, Ireland still imports the considerable bulk of her paper needs, as her home industry is not yet able to



EIRE—PAPER

(In Short Tons)

	Produced	*Exports*	*Imports*
1949	10,029	1,239	52,993
1950	22,046	5,242	66,834
1951	24,000	11,364	60,000
1952	10,327	NA	52,848
1953	12,359	22,068	79,291

meet the increased domestic demands. About one-fifth of paper imports come from Great Britain and about three-fourths of total paper exports return there.

Total paper imports increased about 50% in tonnage and 100% in value. Paper exports for 1953 amounted to $3,421,586 as against imports of $15,139,135, according to the Koras Tractala Teo (Irish Export Promotion Board). This organization was set up in 1951 to promote trade with Canada and the U.S. in addition to other nations.

The new board mill of the National Board & Paper Co., at Waterford has now started up and is running very satisfactorily, according to Frank T. Peterson, vice president of Black-Clawson Co., who visited this mill during his visit to Ireland.

Irish-American interests are financing a 200 ton newsprint mill in Kenmare, county Kerry, Eire, and the New York firm of Merritt-Chapman & Scott is doing the engineering.

In addition to newsprint, the new mill will manufacture kraft and tissue and eventually it is planned to have a fully integrated operation, producing several kinds of pulp.

Construction is expected to be completed in about 18 months.

One of the interesting features of this project is that it will ultimately depend on a planted forest for most of its pulpwood, foresters claiming that suitable wood for pulping is produced in the area near Kenmare in 15 years or even less.

Until plantations recently started are able to meet the demand, pulpwood will be imported.

GREECE

(in thousands of short tons)

	Paper Produced	*Woodpulp Imported*
1937.....	34	26
1946.....	13	13
1949.....	32	25
1950.....	38	33
1951.....	43	37
1952.....	36	18
1953.....	NA	18



PULP from Sweden and Finland is unloaded on these Dublin docks for nearby mills of Killeen Paper Mills Ltd. and Clondalkin Paper Mills Ltd.

GREECE

Completing New Mill

Population: 7,602,000; *Per capita paper consumption:* 13 lbs.

Production (short tons)	*1952 (latest available)*
Paper and paperboard	29,225
Imports	
Woodpulp	17,782
Paperboard	1,972
Wrapping paper	903
Newsprint	14,487
Printing, writing paper	10,417
Cigaret paper	521
Cellophane	141
Carbon	43
Photographic paper	176
Converted paper	14,630
Exports	
Paper or paper boxes	581

Principal imports from: Sweden, Finland, Norway, Germany, U.S., Italy, Austria

Principal exports to: Egypt, U.S.

GREECE COMPRISES 51,246 square miles, about the size of Alabama. Only one fourth of this area is arable. Over 13,350,000 acres are covered by mountains, lakes and rivers. Her forests have been denuded, but reforestation is now going on.

The Greek paper industry now supplies about 85% of Greek requirements, except newsprint. An authoritative report on its industry has been sent PULP & PAPER by the U.S. Dept. of Commerce, based on a report from the Greek Ministry of Industry. These figures cover 1952, which is the latest year such statistics are available.

It is presumed that its new straw pulp mill, at Larissa, Thessaly, reported under construction in last year's WORLD REVIEW, was being completed this year. U.S. put up $600,000.

Consumption of paper and paperboard during 1952 is placed, according to Greek Ministries of Commerce and Industry estimates, at 49,830 short tons. A few specialty papers such as cigaret, carbon and photographic papers, as well as newsprint, are imported. With the exception of locally recovered paper scrap and rags the Greek paper industry depends entirely on imports for its raw materials.

Import restrictions and high import duties aimed at protecting the local paper industry and conserving foreign exchange kept imports of paper and paperboard at a low level during 1952. According to official statistics released by the Ministry of Commerce, Greek imports of pulp and paper in 1952 amounted to 38,036 tons. Exports during the same period totaled 1,225 tons.

DENMARK—PRODUCTION

(in short tons)

	Mech. Pulp	*Paper*	*Paperboard*
1939	570	70,000	11,000
1947	120	78,000	19,000
1950	950	91,296	23,507
1951	908	98,933	15,235
1952	2,120	96,000	18,610
1953	4,850	97,023	25,358

• Over 70 correspondents from more than 40 nations and territories sent exclusive, on-the-spot reports to PULP & PAPER for this World Review.

DENMARK

Adds U.S. Equipment

Population: 4,300,000; *Per capita paper consumption:* 121 lbs.
Paper mills: 12; *Woodpulp mills:* none

Production (short tons)	*1953*	*1952*
Paper	122,100	113,300
Mechanical woodpulp	4,400	2,200
Paper imports	140,800	111,100
Woodpulp imports	82,500	79,200

Principal paper grades made: Kraft, Sulfite, Book and Writing, Paperboard, Tissue
Principal paper imports from: Sweden, Norway, Finland
Principal woodpulp imports from: Sweden, Norway, Finland

DENMARK's proximity to the Scandinavian countries probably accounts for its high per capita paper consumption among the European nations.

The Danish paper industry fully recovered from the slight recession it suffered in 1952. Board and mechanical pulp production reached new records, the latter doubling its 1952 production.

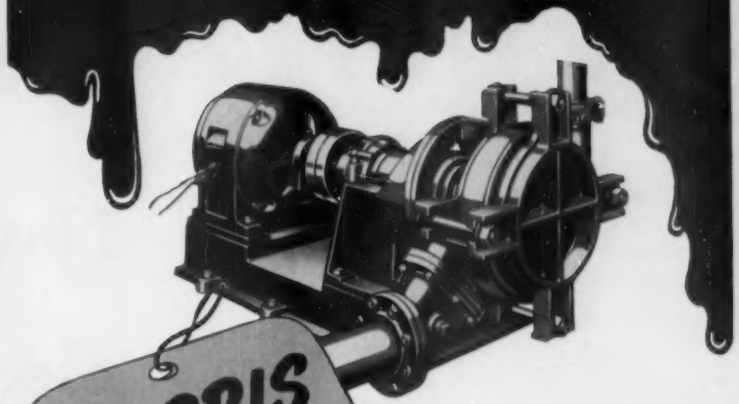
There are no chemical pulp mills in Denmark, although the last report to PULP & PAPER stated that a 9,000 ton a year straw cellulose mill was planned, backed by a Danish Reconstruction Fund loan established from accumulated Mutual Security Agency Funds. Another similar loan was to make possible the construction of a beechwood waste cellulose plant in combination with a sawmill.

The United Paper Mills, with about six mills, produces about 90% of the paper. Newsprint production in Denmark began in 1949.

Frank T. Peterson, executive v.p. of Black-Clawson Co., recently made an extensive tour of Europe, including Denmark and told PULP & PAPER that the Danish paper industry is expanding very rapidly and that consumption is increasing at a terrific rate. He says that Denmark is one country in Europe that consumes about every pound of paper it makes. There are no direct exports of paper, it is all in packaged foodstuffs (Denmark exports more butter and produces more bacon than any country except the U.S.). According to Mr. Peterson, the major portion of this production goes into these packages for export.

Describing the latest B-C installation in a Danish mill, Mr. Peterson says that it was a combination effort from the American and British plants of Black-Clawson, the first American-type high speed board machine in Denmark.

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Withstands friction, scouring and corrosion—Cuts maintenance and replacement costs *because:*

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MORRIS Centrifugal Pumps

The instrument that put electronics to work

Before electronics came into the picture, industrial instrumentation was caught in a squeeze. On one hand, it was besieged with demands by production men and engineers for higher sensitivity, faster speeds, and greater reliability. And on the other hand, it was hampered by the limitations of mechanical devices. For the instruments of fourteen years ago were merely mechanical imitations of a man watching a galvanometer needle and twiddling dials. They were too delicate . . . too sensitive to vibration . . . too easily led astray by wear or maladjustment. They just couldn't deliver the performance that new production methods required.

In 1940, however, came a major milestone in the progress of instrumentation—development of the *ElectroniK* potentiometer. This was not only a new kind of instrument. It was a new concept of measurement. For the first time, it applied the science of electronics in a practical way to the design of a measuring device for industry. It replaced complicated, fragile mechanical gadgets with a simple but sensitive electronic circuit and servo system . . . the "Continuous Balance" principle of measurement.

You could tell it was something new when you opened up the *ElectroniK* instrument's case. There was no sign of whirring gears, levers and cams. You could tell it was giving a new kind of performance in measurement, too, by the way the pointer would move swiftly and surely in one smooth sweep whenever the measured variable changed.

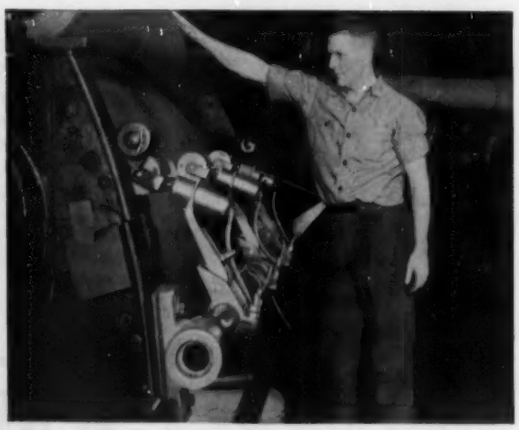
The *ElectroniK* instrument gained quick acceptance by production men, engineers, research technicians and maintenance men. They liked the way it provided laboratory accuracy and sensitivity, week after week, under the toughest industrial service conditions. They found that its speed and precision made possible improvements in product quality and process operation that had been unattainable before. And they have proved their confidence by ordering and reordering *ElectroniK* instruments by the thousands . . . not solely because it was *first* of its kind, but because it has continued to be the *best* in performance.

Now---

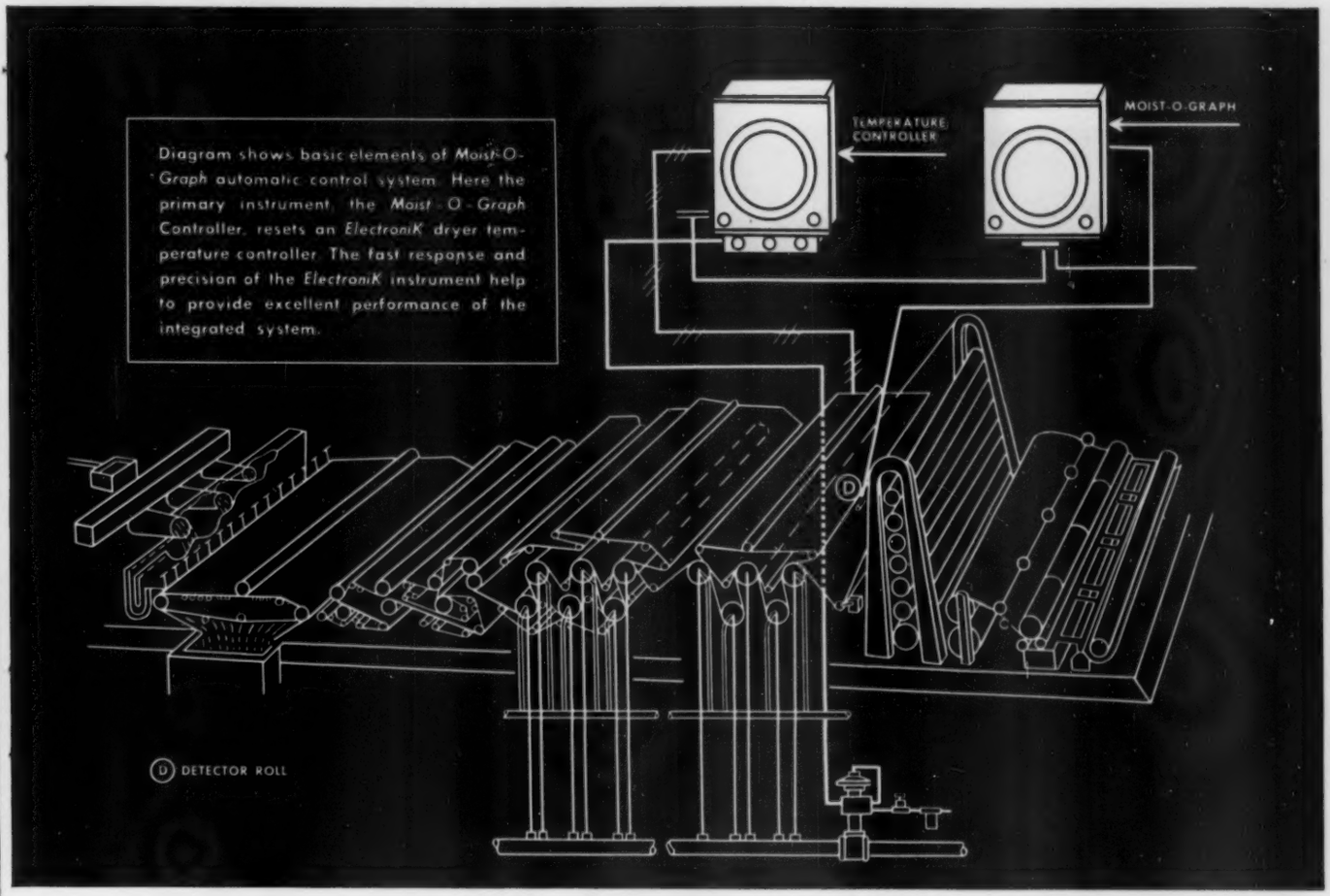
electronic

Moist-O-Graph

controls sheet



Moisture detector rolls are mounted across the width of the sheet on the last drying cylinder.



moisture content automatically

THE ELECTRONIC *Moist-O-Graph*, which has scored such notable processing improvements by recording sheet moisture content, can now function as an automatic controller. This latest development of Honeywell engineering gives paper makers an accurate, completely mechanized means of holding moisture content within closer limits than ever before possible.

The results of *Moist-O-Graph* control are far-reaching. Wrinkling and breaking of stored paper, due to uneven moisture content throughout the roll, are substantially eliminated . . . as are over-drying and resulting brittleness of paper. Steam consumption of the dryers is maintained at top economy. Operators are freed from the task of regulating moisture manually, either during steady production or when breaks occur.

The moisture control system is individually engineered for each installation. The primary controller is the *Moist-O-Graph*, which measures moisture in terms of the sheet's electrical resistance as sensed by a detector roll. This instrument, through its pneumatic control system, resets the index of either a secondary pressure or temperature controller. Measurements are independent of the machine hood humidity, speed, and sheet basis weight. The *Moist-O-Graph* readings can be converted to per cent moisture by establishing a resistance-moisture calibration for the particular stock being processed.

Honeywell specialists, who are thoroughly experienced in the application of controls to paper-making processes, will engineer your individual moisture control system. Your nearby Honeywell sales engineer is well qualified to discuss your specific requirements . . . and he's as near as your phone.

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ASIA

JAPAN

Sets New Records

Population: 87,190,000; *Per capita paper consumption:* 44 lbs.

Paper mills: 585, including 13 straw and vegetable fiber pulp mills

Production (sh. tons)	*1953*	*1952*
Paper	1,941,663	1,479,805
Chemical woodpulp	979,415	761,332
Mechanical woodpulp	623,790	549,548
Straw or vegetable pulp	58,671	55,743
Paper imports	14,575	9,529
Paper exports	19,540	17,189
Woodpulp imports	134,858	66,254
Woodpulp exports	33	1,992

Principal paper grades made: All kinds

Principal woodpulp imports from: North America, Scandinavian countries

Principal paper exports to: Far Eastern countries



GINJIRO FUJIHARA, founder of Oji Paper Mfg. Co., which controlled Japanese pulp and paper industry until forced reorganization in 1949 by Occupation Forces. Company was then split into three; Oji, Jujo and Honshu Paper Mfg. Co. They are still leading Japanese concerns. Mr. Fujihara is shown strolling in his garden on the outskirts of Tokyo.

JAPAN IS POISED on the brink of the world's greatest undeveloped pulp and paper market—Asia, where 800,000,000 people use only five lbs. of paper per person yearly. A second great potential are her own 87,000,000 people, whose use of paper jumped from 34 to 44 lbs. per person in 1953. To bring about fruition of these markets, Japan has taken some giant steps. Increased use of hardwoods, planting of fast growing trees, research on new pulping processes are some of these steps.

Tokuzo Sakurai, secretary general, Japan's Pulp & Paper Council, describes the present status of Japan's industry in detail for PULP & PAPER readers the world over:

By Tokuzo Sakurai
Secretary General
Japan's Pulp & Paper Council

Production—Japan's production woodpulp in 1953 reached a record high of 1,662,000 short tons, an increase of 22% over the postwar highest in 1952 and 18% over the pre-war highest in 1941. Rapid growth of the pulp consuming industries was, of course, the impetus. Paper and board produced in 1953 reached 1,941,000 short tons, exceeding 1952 by 31% and surpassing the 1940 record of 1,703,000 short tons by 14%.

Production of paperboard, which amounted to 500,000 short tons in 1953, increased approximately 40%





JAPAN's pulp and paper industry is putting forth intensive research for new sources of pulp. Here is 10-acre nursery of 1,800,000 fast-growing red pines, with Mt. Fujiyama in background; at right, close-up of one-year-old red pines.

over 1952. An increase in demand for corrugated containers in place of wooden packages spurred the rapid growth of the board industry.

Consumption — With production markedly expanded, Japan's annual per capita consumption of paper rose from 34 lbs. in 1952 to 44 lbs. in 1943, surpassing the pre-war highest of 43 lbs. in 1937. Current consumption rate, however, is no more than the world per capita average in 1950. The low per capita figure of Japan as compared with those countries whose production level is much the same is due to the large population in Japan. This means that there is still a vast potential demand for paper in Japan. Moreover, Japan has important future markets in Asia, where 800,000,000 people consume only an average of five lbs. of paper per year.

Another Japanese pulp consuming industry, rayon, also achieved an increased production in 1953, turning out a total of 520,000,000 lbs. of rayon and acetate, or an increase of 28% over 404,000,000 lbs. produced in 1952.

Imports—The domestic production of pulp being insufficient in the early part of 1953, both rayon and paper pulps were imported from time to time. Dissolving pulp imported during the year amounted to about 83,000 short tons, while imports of paper pulp amounted to approximately 51,000 short tons, bringing the total to 134,000 short tons. This was almost twice the imports in 1952.

The imports of paper in 1953 amounted to 14,500 short tons, more than 90% newsprint. A lengthy strike at one of the largest newsprint mills caused the emergency import of newsprint.

JAPAN—PULP PRODUCTION

In Thousands of Short Tons

	Sulfite (Rayon)	Sulfite (Paper)	Sulfate	Soda Other Chem.	Gr'nd Wood	Total
1938	113	444	69	3	419	1,050
1941	326	481	84	117	463	1,410
1949	50	188	33	8	314	595
1950	111	230	64	34	386	824
1951	190	304	100	85	516	1,195
1952	205	398	158	58	549	1,366
1953	248	484	247	59	624	1,662

JAPAN—PAPER PRODUCTION, IMPORTS, EXPORTS, CONSUMPTION

(In thousands of short tons; except per capita figures in lbs.)

	Produced	Imports	Exports	Consumed Total	Consumed Capita
1937[1]	1,600	70	135	1,535	43
1946[2]	231	—	2	229	6
1949	695	12	6	701	17
1950	962	0.1	22	941	23
1951	1,286	1	48	1,239	29
1952	1,479	9	17	1,472	34
1953	1,942	14	19	1,529	44

[1] Highest in production and consumption
[2] Lowest in production and consumption
Source: Ministry of International Trade & Industry.



THREE NEW JAPANESE MILLS. (Top) Gotsu Mill of Sanyo Pulp Co., started production of unbleached sulfite pulp in June 1952, changed-over to dissolving pulp, sulfite grade, in May 1954. (Middle) Jasugai Mill, Oji Paper Co., Ltd., began operations in April 1953, for production of 22,000 short tons annually of kraft paper. (Bottom) Kokoku Rayon & Pulp Co. mill at Saeki, where production of high alpha woodpulp for acetate and high tenacity rayon began in April 1953.

Exports—Although in pre-war years Japan used to export some 10% of its paper production to China, Manchuria and other Far Eastern countries, postwar export figures are almost negligible. The loss of Mainland China as an export market and the strong domestic needs for paper after the war have caused export trade to dwindle. In 1953, paper and board exported was no more than 20,000 short tons, or 10% odd of the total production.

Pulpwood Problem — Soaring prices of pulpwood were the main headache for the pulp and paper industry in 1953. The margin of profit became especially narrowed in the latter part of the year due to rises in the cost of wood.

However, changeover from softwood to hardwood as raw material, planting of fast growing trees such as eucalyptus, and studies of new pulping processes have already showed good results. For instance, the production of sulfate pulp in 1952 increased 57% over 1951 and in 1953 jumped 56% over 1952. Noteworthy is the commencement of production of semi-chemical pulp in four new mills built in 1953, in Japan.

As one of the measures to solve the wood problem in the future, a plan to utilize Alaskan wood resources was drawn up during the year by some of the industry people with the backing of the Japanese government and the rayon industry. The plan is still in the negotiation stage with the American authorities.

Summation—Superficially, Japan's industry showed brisk activity in 1953, breaking all records in production as well as sales volume. Expansion after expansion, however, resulted in slackness of the domestic market since the middle of the year. The bearish trend is being brought over to 1954.

To cope with the situation, the industry is making every endeavor to: (1) reduce cost through rationalization, (2) improve quality of products and (3) develop new demand with new products.



TAIWAN

Free China's Mills Grow

Population: 8,128,374; *Per capita paper consumption:* 10 lbs.

Paper mills: 31; *Woodpulp mills:* 1

Straw or vegetable fiber mills: Ricestraw 5; Bagasse, 2; Bamboo, 4; Miscellaneous, 2

Production (short tons)	*1953*	*1952*
Paper (inc. board)	38,488	34,794
Chemical woodpulp	5,836	5,745
Mechanical woodpulp	3,214	2,902
Straw & other pulp	13,101	5,908
Paper imports	2,896	2,316
Paper exports	—	50
Woodpulp imports	6,955	4,170
Bagasse pulp exports	2,276	281

Principal paper grades made: Newsprint, Kraft, Sulfite, Book and Writing, Paperboard

Principal paper imports from: Sweden, U.S.A., Canada

Principal woodpulp imports from: Canada, Sweden, U.S.A.

Principal paper exports to: Hongkong, Korea, Thailand

Principal bagasse pulp exports to: Japan, Korea, Belgium





HSINYING PULP MILL (top), one of mills of Taiwan Pulp & Paper Corp., largest pulp and paper organization in Taiwan. This mill plans to shift from sulfite to sulfate process soon. Below is seen how Hsinying mill stores bagasse for its use.

FREE CHINA'S pulp and paper industry continues its expansion program to increase production capacity by over 12,000 short tons yearly. Other objectives are the production of grades of paper now imported to minimize foreign exchange required to import them, and the development of overseas markets in Southeast Asia and other Asian areas.

These are the highlights of reports from Taiwan (Formosa) received by PULP & PAPER from Dr. Karl W. Fries (formerly of Rhinelander Paper Co.) now with J. G. White Engineering Corp. in Taiwan, and Ni-Hung Chang, chemical engineer of planning committee for Taiwan Pulp & Paper Corp. Also assisting in this report is H. B. Hopkins of Anker B. Henningsen Federal Inc., U.S.A., Hong Kong. Karl A. Clauson president, Stora Kopparberg Corp., who visited Formosa in 1953, says that "their paper mill methods are old-fashioned but that at least they are making paper."



DR. H. Y. CHAO (left) is President of Taiwan Pulp and Paper Corp., now in midst of 3-year expansion program. KARL W. FRIES (right), formerly of Rhinelander Paper Co., reports from Taiwan for PULP & PAPER readers.

By Dr. Karl W. Fries
The J. G. White Engineering Co.

There are 31 mills in Taiwan that manufacture paper, pulp, board or a combination of the three. Five are grouped in the Taiwan Pulp and Paper Corp., operated by the Chinese Government. The other mills are privately owned.

The TPPC mills are the largest on Formosa and are equipped with cylinder-Yankee machines, Fourdriniers, two three-pocket wood grinders and stationary as well as globe digesters. They manufacture more than one half the paper made on Taiwan. During the war they suffered damage from aerial bombing, but have recovered quite well.

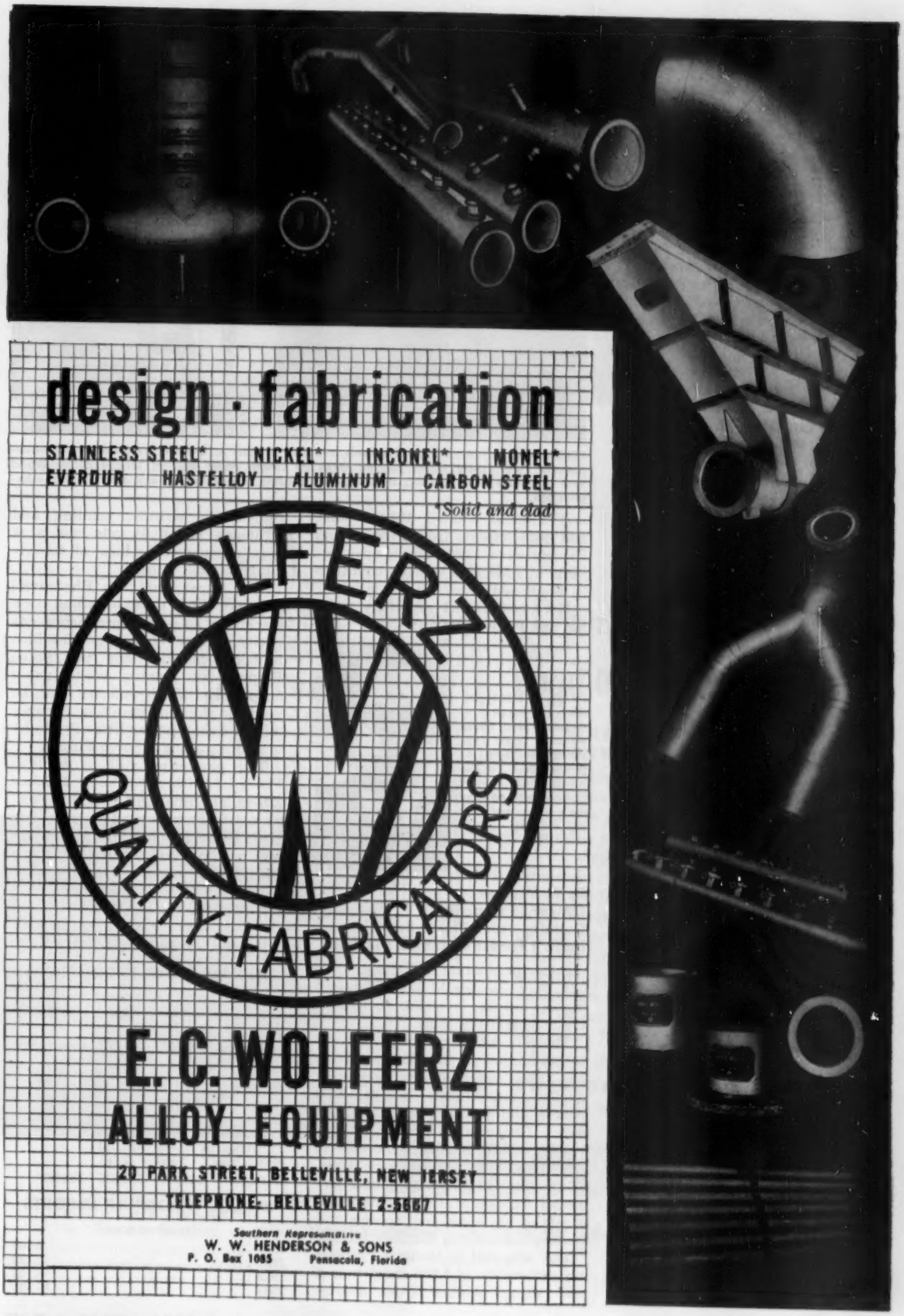
The value of paper imported in 1953 amounted to a little over $2,000,000 (US). No starch coated, lacquer coated, waxed, glassine or greaseproof papers are made in Taiwan at the present time. Newsprint consumption, 4,400 short tons in 1953, is rationed. On the free market, publishers would use at least twice as much.

Production this year is expected to be slightly higher. In 1955, 11,000 tons of additional paper will be produced. Some of the construction and modernizations will be completed by the end of 1954 and there will thus be more production capacity in 1955. The major program is that at the Lotung Mill of TPPC, where a new 120-in. Fourdrinier and modern auxiliary equipment will be installed.

One entirely new private paper mill, financed with private funds, is under construction and will start operations before the end of this

TAIWAN—PAPER PRODUCTION
(in short tons)

	Paper	*Board*
1947	9,761	4,388
1948	14,165	4,477
1949	14,614	4,411
1950	15,296	3,879
1951	18,038	5,511
1952	28,503	6,291
1953	31,829	6,659


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year. It will cook rice straw in a globe digester with kraft liquor (no recovery), and will have one paper machine with two cylinder molds and two Yankee dryers.

By Ni-Hung Chang
Taiwan Pulp & Paper Corp.

Bagasse and bamboo have been the essential raw materials for papermaking because of the scant supply of pulpwood in Taiwan. The Hsinying Pulp Mill of the Taiwan Pulp & Paper Corp. now has an annual output of 22,000 short tons of bagasse pulp. The Tatu Paper Mill of the same corporation uses bamboo as raw material by magnesium base sulfite process, and a new mill, Hwaming Paper Mill, under construction will also use bamboo.

Taiwan Pulp & Paper Corp. is the largest organization in the Taiwan pulp and paper industry, turning out 57% of total paper production. It started a three year expansion program in 1953: (1) To switch existing sodium sulfite process of pulping bagasse now in use at the Hsinying mill to the sulfate process; (2) To work out projects for making some papers now imported, to minimize foreign exchange required to import them; (3) To develop overseas markets in Southeast Asia and other Asian areas.

INDIA

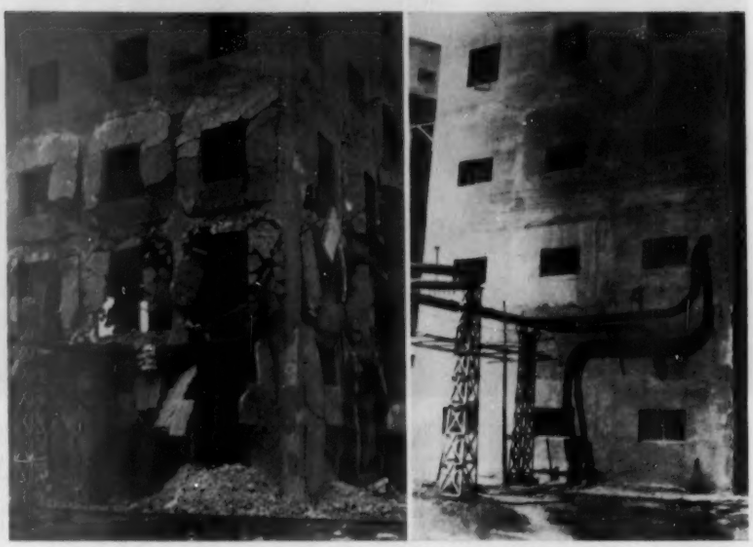
Mills Start, and Delay

Population: 370,000,000; *Per capita paper consumption:* 1.5 lbs.
Paper mills: 19
Strawboard and cardboard mills: 5

Production (short tons)	*1953*	*1952*
Paper	152,023	151,355
Chemical woodpulp	*	2,200
Mechanical woodpulp	*	2,750
Straw & other pulp	*	*
Paper imports	137,192	101,089
Paper exports	1,821	1,606
Woodpulp imports	13,824	6,245
Woodpulp exports	——	——

Principal paper grades made: Kraft, Sulfite, Book and Writing, Paperboard, Tissue, Cigaret and Fine
Principal paper imports from: U.K., Canada, Sweden, Finland
Principal woodpulp imports from: Sweden, Canada
Principal paper exports to: Southeast Asian countries
* *Separate figures not available*

INDIA'S 19 PAPER mills and five strawboard and cardboard mills produced 152,023 short tons of paper in 1953. This increase of 33% since 1950 is due primarily to expanded production capacity of several mills and the start-up of three new mills. Paper imports from United Kingdom, Canada, Sweden and Finland totaled 137,192 tons, and pulp imports from Sweden and Canada were 13,824 tons. Paper exports of 1,364 tons went to countries in Southeast Asia.



BEFORE AND AFTER . . . These pictures, supplied by Karl A. Clausen, president of Stora-Kopparberg Corp., show terrific beating taken by Lotung Paper Mill on Taiwan during World War II bombing. These views show digester building after bombing, and after postwar rehabilitation.

Here is a report especially written for PULP & PAPER:



DR. R. V. BHAT, Officer-in-Charge of Cellulose and Paper Branch, Forest Research Institute at Dehra Dun, India, again writes a special report on India's pulp and paper industry.

By R. V. Bhat
Officer in Charge,
Cellulose and Paper Branch,
India's Forest Research Institute

Paper production in India of 152,023 short tons would have been still higher but for a strike in one of the biggest paper mills.

The mill which recently went into production in the Bombay State has three vat machines producing duplex and triplex boards, mill boards and printing and wrapping paper. Capacity is 5,500 short tons yearly, with provision to increase to 7,700 tons. This mill uses rice straw, jute waste, paper cutting and imported woodpulp and intends using woods of the broad-leaf species and grasses available in Bombay forests.

The new mill in Madhya Pradesh has a capacity of 8,800 short tons a year using bamboo from nearby forests for writing, printing and wrapping paper. It gets coal at a very cheap rate because of the vicinity of coal mines.

The paper mill at Bhadravati (Mysore State) is installing new machinery to double production capacity. A new Voith paper machine is being installed and two Solvo Pulpers for pulping waste paper and broke. Voith refiners will be used for stock preparation. A paper mill at Saharanpur (Uttar Pradesh) is also installing a Solvo Pulper.

The newsprint mill in Madhya Pradesh (with new Pusey & Jones 226-in. machine built in U.S.) is expected to go into production in late 1954. Since its chemical pulp plant will not be ready by that time, this mill will use imported woodpulp for blending with mechanical pulp from salaie wood. (It is 325 mi. north of Bombay, was to start up in 1950 originally, then last year—there

INDIA—PAPER PRODUCTION

(in short tons)

	1946	*1952*	*1953*
Printing and Writing	71,390	100,573	breakdown not available
Kraft wrapping	11,476	13,272	
Other wrapping	5,781	10,395	
Paperboards	20,446	24,013	
Specialties	7,506	3,101	
TOTAL	116,599	151,355	152,023

INDIA—WOODPULP IMPORTS

(in short tons)

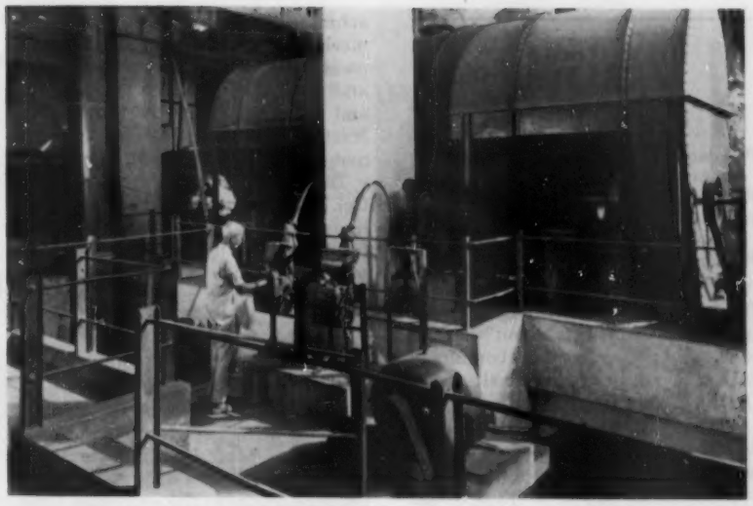
1950	8,565
1951	5,223
1952	6,245
1953	13,824

have been many delays).

Some Indian mills have started making lightweight papers. A mill in the south is manufacturing kraft papers from eta reeds. Printing and writing papers, however, continue to form the bulk of production.

A new process for the production of quality papers from sugar cane bagasse has been developed at the Forest Research Institute, Dehra Dun. Bagasse is depithed using a rod (roller) mill and a screen. The depithed bagasse is cooked in the soda process and the pulp is bleached with bleaching powder. This bleached pulp is blended with long-fibered pulp such as bamboo or sabai grass for making writing and printing papers. A paper mill in Punjab is manufacturing about four tons daily of bagasse pulp by this process.

The new laboratories of the Cellulose and Paper Branch, Forest Research Institute, Dehra Dun were opened in Jan. 1954 by Dr. Punjabrao Deshmukh, Minister of Agriculture. It is intended to start training courses in pulp and paper technology at the Institute.



These dusting drums help remove pith from disintegrated bagasse before pulping at Rhotas Industries Ltd., India, where Celdecor has installed equipment for Celdecor-Pomilio continuous pulping-bleaching system.



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PAKISTAN

Plan Third New Mill

Population: 75,687,000; *Per capita paper consumption:* 2 lbs.
Paper mills: 2

Paper imports	*1953*	*1952*
(short tons)	20,000	24,411

Principal paper imports from: Finland, Sweden, Belgium, England

PAKISTAN, ONE of the larger countries of the world, is about the size of Texas and Wyoming combined, with a population almost half of the U.S.

Despite unprecedented problems which this country has been faced with during its first years as a separate state, Pakistan is approaching the stage where she will be able to meet her requirements of pulp, paper and paperboard, except for newsprint and a few specialty papers. It started up one new mill in late 1953, another may be completed this year. And now it has decided on a third—to make newsprint.

According to present indications, Pakistan will soon be self-sufficient in respect to various grades of writing, printing, wrapping papers and several qualities of board, the latter being of straw or ranging to the higher grade duplex and triplex boards by the end of this year.

Investigations are presently being made with a view to establishing a hardboard factory in the province of Sind, West Pakistan.

Much interest has centered in the new Karnaphuli Paper Mills at Chandraghona, East Pakistan, some 22 miles upstream from Chittagong on the banks of the Karanphuli River. The mill is designed to achieve a maximum degree of mechanization with a productive capacity of 100 tons a day of all fine and superfine qualities of printing and writing papers by the sulfate fractional cooking process for the manufacture of pulp from bamboo.



To Build Pakistan Mill

These men will engineer construction of new newsprint mill in East Pakistan with a rated capacity of 80,000 tons yearly. They are P. R. "DICK" SANDWELL (left) and S. D. FORD (right) his Assistant Chief Engineer, both of Sandwell & Co., Vancouver, B.C. They recently returned from a tour of Europe where their company is designing changes and improvements in several mills.

The mill went into production in Oct. 1953, using imported pulp, but the new pulp mill is now ready for full operation, using bamboo as raw material. It is expected that full capacity will be reached midsummer.

The Amangarh High Grade Board Mills at Nowshera is being established in West Pakistan, designed to produce high grade boards such as bleached and colored duplex, triplex boards and good quality writing and printing papers out of grass pulp by utilizing mono-sulfite processes. This mill will have an installed capacity of 30-32 tons of high grade board or paper daily, or approximately 7500 tons a year.

The most interesting feature of this mill is the "combination" machine which has been adopted with a view to obtaining flexibility of production to produce both board and paper to suit fluctuating market trends. This will be the first machine of its type to be erected in the Indo-Pakistan sub-continent.

Work on construction of factory buildings and erection of machinery is expected to be started by the end of 1954.

Another mill to be in production probably by the end of 1954 is a strawboard mill at Rahwali in the Punjab. This has been designed to produce 25 tons of strawboard and wrapping paper per day, using rice straw pulp processed by a Black-Clawson Hydrapulper.

The mill will be adapted to manufacture both heavy substance strawboards and also paper of cheap wrapping quality. Construction had started before mid-1954.

The Pakistan government decided to proceed with construction of a newsprint mill in East Pakistan, and Sandwell & Co., Vancouver, B.C., has been engaged to carry out the engineering in connection with this project.

The mill, which will produce other grades besides newsprint, will have a capacity of approximately 80,000 tons a year. It will be in the province of Sind.

PAKISTAN—PAPER IMPORTS
(in short tons)

	Wrapping	*Printing inc. news*	*Writing*	*Paperboard*	*All Paper (inc. others)*
1950	6,226	8,871	2,477	3,080	23,516
1951	1,618	11,255	2,537	3,497	21,228
1952	2,300	12,000	2,800	4,000	24,411
1953	2,182	6,766	4,000	6,772	20,000

RED CHINA

Has Many Tiny Mills

Population: 601,000,000; *Per capita paper consumption:* 1.6 lbs.

Production (short tons)	*1953*	*1952*
Paper and board	400,000	400,000
Paper imports	75,000	75,000
Newsprint imports	25,000	25,000

Principal paper and pulp imports from: Russia, Sweden, Finland, Norway, Poland
Principal paper exports to: Ceylon

COMMUNIST CHINA is moving towards self-sufficiency in papermaking, according to reports from Peking. Papermaking in China, however, is still believed to be confined to hand made processes, but this is only a temporary expediency until proper equipment is made available.

According to the report, 1952 was the first time that almost all newsprint used in China was home produced. More than 100 grades of paper are said to be made, from cigaret grade to cement bags.

A new high in China's enormous population was recently announced by the Peiping radio, according to Reuters. From a census taken during recent elections, China's present population is placed at 601,000,000, 137,506,582 more than in 1948 census.

An up-to-the-minute report on China's paper industry has been made in the *Annual Review* of Zellstofffabrik Waldhof, of West Germany. Here are some of its more interesting features.

"Before World War II, only a few small paper mills comprised the Chinese paper industry, mainly in the Shanghai area. Total production took care of barely one-third of the needs for paper and board; the rest being imported from Japan, U.S. and Europe. Figures concerning present capacity vary greatly. For 1951, a production of more than 400,000 tons of paper and board is named.

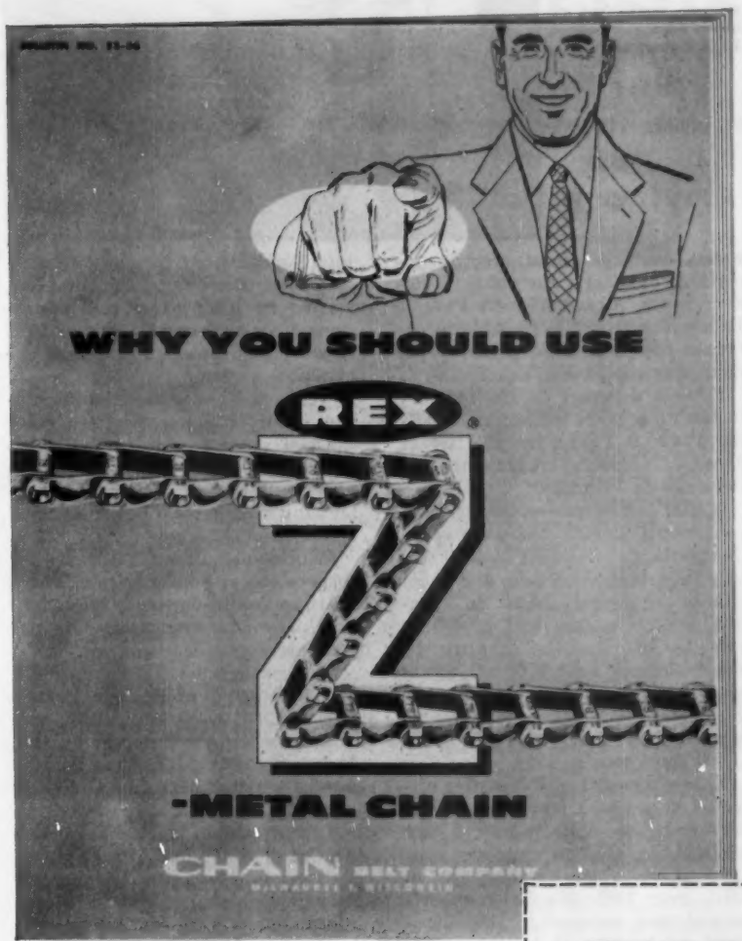
"Since fiber wood is by and large available only in the inaccessible parts of the country, rice straw, cotton wood, sugar cane and recently, fast-growing bamboo, are utilized.

"In Canton, the newsprint mill, which was destroyed in the Chinese-Japanese war, is said to have been rebuilt. Other mills are planned for newsprint production. Imports are estimated at about 100,000 tons a year."

Newsprint imports from Finland in 1953 totaled 8,069 tons, against 10,737 tons in 1952. Writing and printing papers totaled 6,988 tons. Total paper imports in 1953 were 20,008 tons compared with 23,368 tons in 1952.

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PHILIPPINES

3 New Mills Starting

Population: 19,000,000; *Per capita paper consumption:* 10 lbs.

Paper mills: 1 *Woodpulp mills:* none

Chipboard mills: 2; *Other fiber mills:* 1

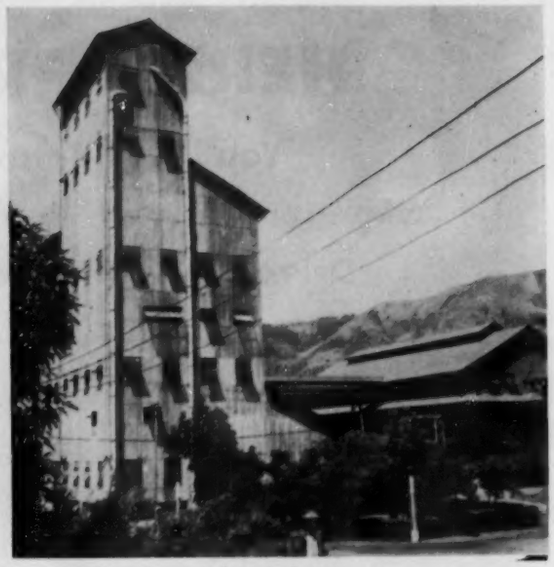
Production (sh. tons)	*1953*	*1952*
Paper	5,583.06	5,192.40
*Chipboard	1,261.16	924.26
Straw & other pulp	4,706.43	4,529.90
Paper imports ($000)	$18,437	$19,635
Woodpulp imports (s.t.)	811.00	615.00

Principal paper grades made: All kinds

Principal paper imports from: U.S.A., Canada

Principal woodpulp imports from: U.S.A.

**Partial figures only, production of Compania de Celulosa de Filipinas*



Only pulp and paper mill in the Philippines using native raw fibers —bagasse—is this mill at Bais, Negros Oriental, owned by Compania Celulosa de Filipinas. Annual production of bond papers is about 13,000 short tons.

THE INFANT PAPER industry in the Philippines looks to a bright future under the new administration and the substance of reports from our correspondents there indicate confidence that the industry will lick the many difficulties now confronting it.

Some of these obstacles are the lack of local suitable raw material, other than bagasse, which can be harvested economically, and the fact that this nation of 19,000,000 people has only one paper mill and two chipboard mills to supply its requirements. There is also, according to Alexander Adamson, president, Philippines Paper Mills, Inc., a terrific marketing problem to increase the nation's low per capita consumption.

Full statistics on pulp and paper production and imports are not available as such, inasmuch as the Philippine Bureau of Census & Statistics compiles these records according to total peso value. However, from various reports PULP & PAPER received, it is possible to estimate the general pulp and paper picture in the Philippines.



ALEXANDER A. ADAMSON, Pres. and Gen. Mgr. of Philippine Paper Mills, reports again on progress for our *World Review*.

Here is a report on the industry in the Philippines written especially for PULP & PAPER by M. Rivers, general manager, Compania de Celulosa de Filipinas:

"Little can be said about new developments during the last years. Compania de Celulosa is still the only fully integrated pulp and paper mill in the country based on a native fiber, bagasse, and has been able to increase its capacity by about 10%. A new $500,000 power plant and other improvements in the mill will boost production of bond and writing paper to about 13,000 short tons in 1954.

"Our chipboard mill has also operated at a much higher rate than previously and with a new beater we will be able to produce over 5,000 short tons, an increase of 100% over 1953. We have experimented and successfully manufactured chipboard with bagasse semi-chemical pulp, mixed with waste paper or old newspaper.

"The general condition in our country of the pulp and paper industry is more or less at a stand still, due to the fact that it is rather difficult to find local raw materials suitable for the manufacture of paper, aside from bagasse."

New Mills Planned

A further report on the Philippine paper industry comes from Alexander Adamson, president, Philippines Paper Mills, Inc., who depicts an optimistic future for its infant industry.

"Cebu Portland Cement Co., started its kraft paper mill operations during the middle part of 1953. However, no production figures are available as yet.

"A small Yankee machine for tissue paper is undergoing trials for the last several years at Philippine Interwood, to manufacture tissue paper out of soft shavings, but so far no products have been produced in the market.

"Worldwide Paper Mill, a new corporation, is presently installing a board mill with Japanese machinery and know-how to manufacture paperboard out of waste paper.

"Concerning the Soriano project, first mentioned in PULP & PAPER'S WORLD REVIEW NUMBER, 1952, and which concerns a proposal by Col. Andres Soriano, head of the Soriano enterprises, that his companies combine with San Migue' Brewery to build a woodpulp and paper mill on the Cateel River in Bislig Bay area of Surigao, Mindanao, with a 200 ton a day capacity of kraft, no recent information is available, but we understand that they are going ahead with the project.

"Philippines Paper Mills, Inc., will start trial runs on two Smith and Winchester Wetlap machines for the manufacture of leatherboard as well as counter shank and trunk boards

THE PHILIPPINES—IMPORTS

(In short tons)

	Newsprint	*Fine & Book Paper*	*Wood Pulp*	*All Papers and Woodpulp*
1947	19,278	1,463	—	—
1949	30,151	2,564	221	58,796
1950	24,842	4,646	357	61,552
1951	32,046	9,812	510	71,400
1952	16,146	10,561	615	58,982
1953	24,679	8,753	811	(not available)

utilizing leather scraps as well as kraft papers for its initial raw materials. Expansion of chipboard machines is now underway and we hope to produce 50,000 to 60,000 lbs. a day. All our equipment is U.S. made. Future plans call for a 50 ton pulp mill at our present site using a new forest product that has been found by us to be of marketable and economic value to our industry," said Mr. Adamson.

HONG KONG

Overstocked in Paper

Population: 1,100,000; *Per capita paper consumption:* 23 lbs.

	1953	*1952*
Paper Imports	34,806	25,824
Paper Exports	8,822	21,088

Principal paper exports to: South Korea, Taiwan, Indonesia

HONG KONG is a Crown Colony acquired by the British from China in 1842 and today is generally regarded as a "hostage" to Red China. It is 90 miles south of Canton, China. The island is 11 miles long, about 2 miles wide, with an area of 32 square miles. Total area of the colony, including the New Territories and Peninsula of Kowloon on the mainland, is 391 square miles.

Most governments seem to accept as a fact that Red China could seize Hong Kong any time it chose—but it does not choose while it has British recognition and commerce.

Hong Kong was long an important British naval station because it dominated the South China trade via the Pearl River. U.S. efforts to cut shipments of essential materials to Communist China via Hong Kong haven't been successful.

Chinese refugees in the late 40's doubled its population to over 2,000,000. But many thousands were forced to drift back, just to be able to eke out a living.

Pulp and paper data on the Hong Kong industry come from H. B. Hopkins of Anker B. Henningsen, Federal Inc., U.S.A, Hong Kong, who advises that the market has not changed to any extent since early 1953, although by April 1954 it was overstocked in certain grades, particularly in printing and writing paper, newsprint, and wrapping paper.

Its exports of paper last year to Red China were negligible. It exported 3,855 tons to South Korea, 944 tons to Taiwan and 1,110 tons to Indonesia.

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Young Israel's Prime Minister, MOSHE SHARETT, inspects a dream come true—ISRAELI PAPER MILLS—which will save over $1,000,000 in hard currency for his nation. Left to right—the Prime Minister; DOV JOSEPH, Minister of Development; GOLDA MYERSON, Minister of Labor, and ROBERT ZION of Philadelphia, U.S.A., who has been loaned by Hudson Pulp & Paper (U.S.A.) to serve as General Manager.

ISRAEL

First Mills Now Run

Population: 1,430,000; *Per Capita paper consumption:* 8 lbs.
Paper Mills: 2

	1953	1952
Paper Production	500 tons	500 tons

Pulp imports from: Finland, Norway and Sweden

ISRAEL'S 7,800 SQ. MI. equal New Jersey in area with about one-third the population.

On the main highway between Israel's chief port and industrial center of Haifa and the principal commercial city of Tel-Aviv, at Hadera, stands the young nation's industrial showplace, the four million dollar American-Israeli Paper Mills. It started up in the past year. Rated capacity is about 15,000 tons annually of newsprint, writing and kraft papers. With production from this new mill, Israel's dream toward self-sufficiency takes a giant step forward, for the mill will save her about $1,000,000 in hard currency.

As mentioned in this section last year, there are two new "first" mills in Israel, but the other one, the Supra Mill at Lydda, is much smaller. It makes paperboard and was built with American private investment aid, also.

A striking feature behind the successful completion of Israeli Paper Mills, according to Joseph Mazer, of New York, treasurer of Hudson Pulp & Paper, is the cooperation which he says was so freely given by every mill approached in the U.S. This cooperation however, was not confined to the U.S. because the new mill is truly an international venture. Investors came forward from Latin America, Australia, Europe and Israel. Competent operating personnel were drawn from the U.S., Scotland and Switzerland.

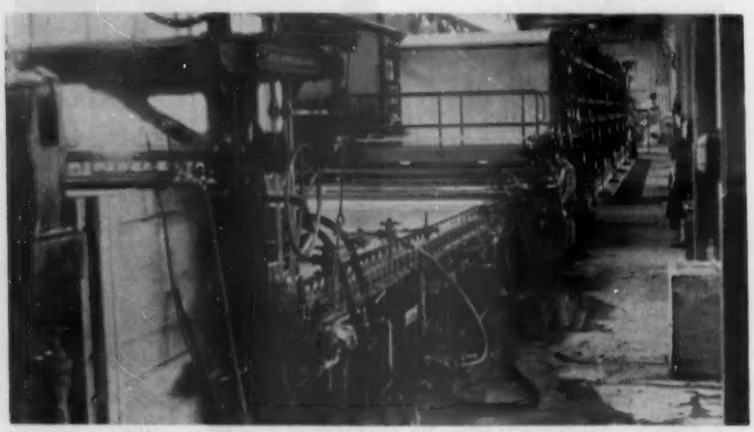
Merritt-Chapman & Scott, Inc., of New York, planned, designed and supervised construction, which in spite of many difficulties was completed on schedule.

The mill boasts much U.S.A. equipment—Shartle Hydrapulpers, Morden refiners, Lobdell roll grinder, Seybold cutter and Transite piping. The 136-in. Fourdrinier built by Bertrams, Ltd. of Edinburgh, Scotland, which has a Sandy Hill type headbox, preceded by an E. D. Jones & Sons stainless steel screen. Stonite rolls, Pope reel, and Bertram rewinder are other equipment.

Combustion Engineering built the 65,000 lbs. capacity steam boiler. Oliver equipment is used in the water system.

Finland will supply pulp requirements for the new mill under an Israeli-Finnish trade agreement and a stockpile has already been built up.

General manager of the mill is Robert Zion, of Philadelphia, a managerial employe from Hudson PULP & PAPER (U.S.A.), who has been assigned to serve until the Israelites are ready to take over.



MACHINE in Turkey's third paper mill at Izmit (Marmara), completed in 1953. Mill has annual rated capacity of 20-25,000 tons of corrugated and ordinary cardboard, yellow straw paper and various packaging papers.

TURKEY

Builds Third Mill

TURKEY

Population: 22,000,000; *Per capita paper consumption:* 5 lbs.
Paper mills: 3 *Woodpulp mills:* 3
Strawpulp mills: 2

Production (sh. tons)	1953	1952
Paper	32,670	32,670
Chemical woodpulp	12,760	13,090
Mechanical woodpulp	10,340	10,340
Straw & other pulp	2,200	3,630
Paper imports	36,300	32,120
Paper exports	—	—
Woodpulp imports	2,420	2,695
Woodpulp exports	—	—

Principal paper grades made: All kinds
Principal paper imports from: Czechoslovakia, Finland, Austria, Sweden
Principal woodpulp imports from: Czechoslovakia, Finland, Austria, Sweden

THE MODERN PAPER industry in Turkey, founded in 1936, maintained its 1952 level of production by producing 32,000 short tons in 1953. A third paper mill completed in 1953 has a capacity of 25,000 short tons of corrugated and ordinary cardboard, yellow straw paper, and various types of heavy packaging paper, and is expected to boost national production to about 55,000 tons.

According to Vasif Epir and Fahir Sipahi of Sumerbank General Directorate, who sent this report to

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PULP & PAPER, these mills are now able to meet about 80% of paper and cardboard requirements of Turkey. They conclude their report in an optimistic vein saying that as the need for paper and cardboard obviously grows from one year to another, new mills will have to be set up in the near future.

TURKEY—PAPER & PULP

(in thousands of short tons)

		Production		Imports
	Paper	*Chem. Pulp*	*Groundwood*	*Chem. Pulp*
1949	18.4		(not available)	
1950	20.0		(not available)	
1951	23.2	10	8	2
1952	30.0	12	9	3
1953	32.6	12	10	2

• Over 70 correspondents from more than 40 nations and territories sent exclusive, on-the-spot reports to PULP & PAPER for this World Review.

REST OF ASIA

To Build Burmese Mill

Over 160,000,000 people in other Asiatic countries not treated separately in this section use an average of 2 to 5 lbs. of paper per person per year.

THERE ARE NUMEROUS other countries in Asia, greatly undeveloped but newly conscious of their growing stature in world importance. Comprising an estimated 160,000,000 people, the per capita paper consumption in these countries ranges from less than a pound per person to five lbs.

Recent surveys made by the Food and Agriculture Organization of the U.N. have served as sharp stimuli to awaken these countries to their vast potential fibrous wealth. As a result of these studies, several projects are now underway to use these native fibers.

In Ceylon, a mill producing paper is scheduled to begin operations by end of 1954. In Thailand, the government is running factories engaged in the manufacture of paper. Thailand imported 2,911 tons of newsprint from Finland in 1952, against 1,309 tons in 1952. Total newsprint, wrapping and printing and writing paper imports from Finland were 3,556 tons. Total 1952 paper imports were 1,972 tons.

The Burmese Government is definitely going ahead with plans for a 100 ton a day bamboo mill, according to Harold R. Murdock, former research director of Champion Paper & Fibre Co.

Bamboo, which is plentiful in that region, is the least of problems posed in construction of the mill. Fresh water is scarce in the area of the proposed mill and the entire project would have to be carved out of the wilderness.

Preliminary studies of the feasibility of building such a mill were made last November after a report made by a U.N. economist indicated such a mill would be a decided advantage to Burma. Site of the proposed mill is believed to be near Akyak in Rangoon, where the only transportation is by rivers.

A proposed large newsprint mill in Indonesia, backed by the Indonesian Government, to be erected in Atjeh, Northern Sumatra, has has been postponed due to lack of exchange. Total paper imports to Indonesia from Finland were 3,842 short tons.

Indonesian hopes for a pulp and paper mill using pines from the Atjeh forests may be realized according to latest reports. Proposed originally in 1951, the project was reportedly postponed in 1953 due to lack of exchange. The proposed mill would produce about 25,000 tons of newsprint and 18,000 tons of cellulose. Total paper imports to Indonesia from Finland in 1953 were 3,842 short tons.

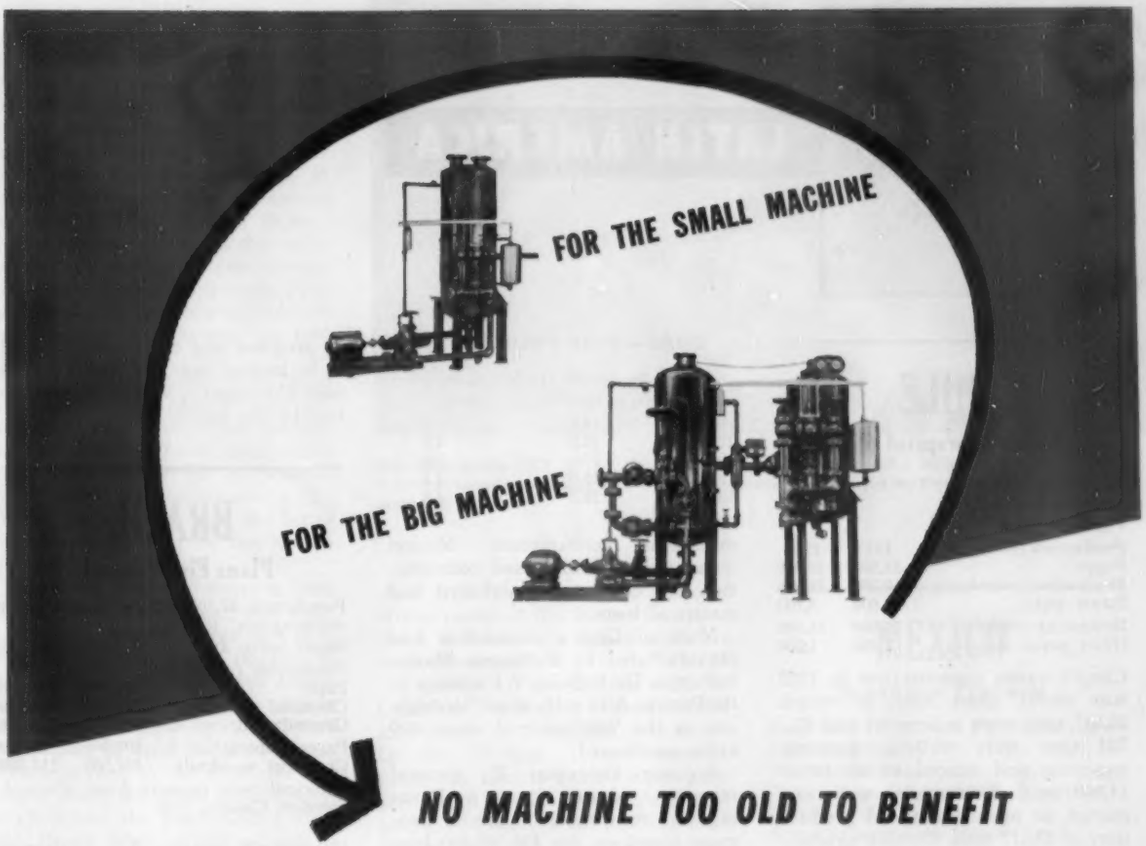
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Camp Manufacturing Company ..... Franklin, Virginia
Champion Paper & Fibre Company ..... Pasadena, Texas
Container Corporation of America ..... Fernandina, Florida
Dexter Sulphite Pulp & Paper Company ..... Dexter, New York
Hudson Pulp & Paper Corporation ..... Palatka, Florida
National Container Corporation ..... Jacksonville, Florida; Valdosta, Georgia
St. Joe Paper Company ..... Port St. Joe, Florida
St. Regis Paper Company ..... Eastport, Florida; Cantonment, Florida
Southland Paper Mills, Inc. ..... Lufkin, Texas
Tasman Pulp & Paper Co., Ltd. ..... Tawerau, New Zealand
Union Bag & Paper Corporation ..... Savannah, Georgia

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LATIN AMERICA

CHILE

Builds Newsprint Mill

Population: 6,070,000; *Per capita paper consumption:* 22 lbs.

Paper mills: 9

Production (short tons)	*1953*	*1952*
Paper	52,500	49,000
Mechanical woodpulp	16,200	19,000
Straw pulp	4,800	4,100
Newsprint imports	14,600	11,000
Other paper imports	1,600	1,800

CHILE'S PAPER CONSUMPTION in 1953 was 68,701 short tons, of which 24,917 tons were newsprint and 43,784 tons were writing, printing, wrapping and miscellaneous. Some 14,600 tons of newsprint were imported, as against national production of 10,317 tons. Chilean production of other papers was 42,189 tons in contrast to 1,590 tons imported.

Limited newsprint production and import restrictions have curtailed newsprint consumption. Market trend indicates increased consumption for corrugated boxboard and multiwall bags.

CHILE—PULP PRODUCTION

(in thousands of short tons)

	Mechanical Pulp	*Straw Pulp*
1949	14.3	6.0
1950	16.9	4.9
1951	17.1	5.2
1952	19.0	4.1
1953	16.2	4.8

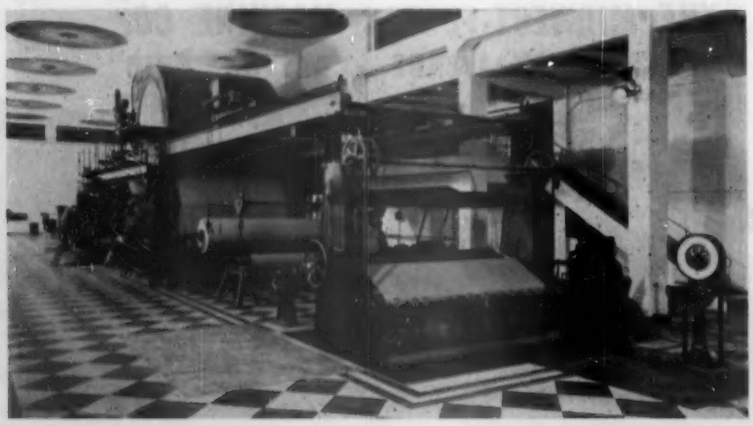
Most of Chile's production was manufactured by Compania Manufacturera De Papeles Y Cartones at its Puente Alto mill, near Santaigo, and at the Valdivia mill about 600 miles southward.

Antonio Bascunan P., general manager, advises PULP & PAPER that the company's expansion program based on the $20,000,000 loan from the International Bank for Reconstruction and Development in Sept. 1953 (first mentioned in PULP & PAPER, 1951 Review) is already in progress and the newsprint mill, to be located near the Bio-Bio river near Concepcion, will be in production by the end of 1956.

CHILE—PRODUCTION IMPORTS, CONSUMPTION

(in thousands of short tons)

	Production		*Imports*		*Total*
	Newsprint	*Other Papers*	*Newsprint*	*Other Papers*	*Consumption*
1949	9.	37.7	15.4	3.3	65.5
1950	12.1	34.7	21.5	1.7	70.1
1951	12.1	36.3	14.0	1.8	64.4
1952	12.8	36.1	11.0	1.8	61.8
1953	10.3	42.1	14.6	1.6	68.7



This is No. 10 machine which produces wrapping paper for Cia. Manufacturera De Papeles & Cartones near Santiago, Chile.

BRAZIL

Plans Five Projects

Population: 57,100,000; *Per capita paper consumption:* 15 lbs.

Paper mills: 41 *Pulp mills:* 15

Production (short tons)	*1953*	*1952*
Paper	330,000	313,000
Chemical woodpulp	81,000	80,000
Groundwood	110,000	110,000
Paper Imports	100,000	60,000
Chemical woodpulp	107,000	110,000

Principal pulp imports from: Finland, Sweden, Canada, U.S.

BRAZIL'S 20 STATES, five territories and one federal district occupy 47.3% of all South America. It is the fourth largest country in the world. Texans may not like this, but Brazil is equal in area to the U.S. with Texas thrown in twice.

Major deterrent to further development of Brazil's great natural wealth is the shortage of electric power. However, in spite of this, 1953 witnessed many expansions and modernizations in the pulp and paper industry which has as its ultimate goal, self-sufficiency. Other important developments in this report from The Brazilian Government Trade Bureau provided PULP & PAPER with new data indicating its potential growth and utilization of resources.

Brazil's per capita paper consumption of 15 lbs. shows how much further progress may be made. Estimated population at July, 1954 stood at 57,100,000, an increase of over 5,000,000 in 1953. Anticipated populations, according to President Getulio Vargas, are 66,000,000 in 1960 and 100,000,000 by the end of the century.

In discussing the power shortage problem, President Vargas says that power requirements call for expansion of generating facilities to obtain

a total installed output of 8,500,000 kw by 1965 in contrast to present estimated shortage of 1,500,000 kw.

Domestic production can balance national consumption by 1955, according to a study by a United Nations team. The greatest lack at present is newsprint, which accounts for about 90% of imports. Expansion of present mills and the addition of two new mills can accomplish this balance, it is claimed. Pulp capacity would have to reach 147,000 tons by 1955; 223,000 tons by 1960 and 334,000 tons by 1965.

Five pulp projects, with total rated capacity of 142,000 tons, are proposed. They are: One bagasse mill to produce 7,500 tons; three mills using eucalyptus to produce 15,000, 33,000, and 60,000; and a 27,-000-ton Parana pine mill, the latter probably to be built by the Klabin interests.

Brazil has enough forests to take care of its needs of paper and pulp, it is stated, though a large part is in difficult, tropical areas. Bagasse is quite plentiful in Northeast Brazil and Sao Paulo where sugar cane is produced. Cellulose by using pine is available in three states in Brazil.

Parana pine is the basis for the largest single industrial development in all Brazil, the giant Klabin Pulp and Paper Mills, which supply a large percentage of newsprint used in the country and are expanding to meet growing demand.

For a long-term period, it is suggested using the Amazon forests. There, the possibility exists of conducting experiments paralleling those now being conducted in French Africa. Use of the Amazon forests is proposed for groundwood or chemical pulp for printing paper. New hardwood pulping techniques have brightened this picture.

Largest paper mill in all South America, Industrias Klabin do Parana, is in the midst of extensive modernization. Edmund E. Levin, their New York manager, and one of the heads of the enterprise, gave PULP & PAPER this information on their operations:

Capacity of the Klabin mill in Curitiba, Parana, is about 79,000 short tons or about 220 tons daily. Of this, 55 tons is semi-chemical pulp; 130 tons is groundwood pulp and about 35 tons sulfite chemical pulp. The groundwood mill has four Kamyr and two Roberts grinders. A new Bagley & Sewall 140-in. Fourdrinier started operations in July, 1954. Other improvements are an Improved Paper Machinery high density storage system and a new Kamyr sulfite bleach system. An innovation at this mill is the burning waste wood for steam and power. This mill also makes its own chlorine.

Industrias Klabin is the largest user of General Motors trucks in Brazil. The company has an extensive reforestation program in progress on its 400,000 acres. The company employs 25,000 people in forests and mills.

A pulp and paper mill is planned for the Amazons, depending on the availability of electric power. Sponsored by the Ibessaba Group, the mill would use the white Imbauba tree, which is plentiful in the Amazons.

According to the Brazilian Trade Bureau, Brazil's first factory producing paper from sugar bagasse pulp, at Monte Alegre, in Piracicaba, planned to boost its production 400% in 1954 to a total of 50 tons daily. This mill, said to be the third of its type in the world, uses the Pomilio continuous pulping and bleaching process, the others being in the Philippines and in India.

BRAZIL—PAPER—PULP

(in thousands of short tons)

	Paper	
	Produced	*Imports*
1938	117	55
1947	188	93
1949	220	58
1950	275	75
1951	269	58
1952	313	60
1953	330	100

	Woodpulp			
	Produced		*Imports*	
	Chemical	*Groundwood*	*Chemical*	*Groundwood*
1950	50	44	145	12
1951	80	110	143	0
1952	80	110	110	0
1953	81	110	107	0



THE EXPANDING CITY OF RIO DE JANEIRO with its modern office buildings lies below the towering Corcovado mountain on which the giant statue of Christ the Redeemer extends a protecting gesture.

MEXICO

Expansion Proceeds

Population: 27,000,000; *Per capita paper consumption:* 17.7 lbs.

Paper mills: 29

Woodpulp mills: chemical, 3; mechanical, 6

Straw or vegetable fiber mills: 1

Production (sh. tons)	*1953*	*1952*
Paper	201,000	198,000
Chemical woodpulp	54,000	90,000
Mechanical woodpulp	38,000	
Paper imports	40,000	32,000
Woodpulp imports	54,000	60,000

Principal paper grades made: Kraft, Sulfite, Book and Writing, Paperboard

Principal paper imports from: U.S.A., Canada, Finland

Principal woodpulp imports from: U.S.A., Canada, Sweden, Finland

By Carlos Garcia Robles
Pulp & Paper Mill Engineer, Mexico City

THE MEXICO PULP and paper industry underwent a temporary decline in early 1953 but things looked bright toward the year's end and most mills' inventories were sold.

Cartonajes Estrealla, S.A., Atzcapotzalco (Mexico City suburb), is in full production of fine folding boards on its new six vat board machine, producing about 33 short tons a day. They are considering installation of a suction press, smoothing press and a hood for the dryers.

The new Pomilio process bagasse pulp plant, Fabrica de Celulosa El Pilar S.A. at Ayotla will begin production in mid-1954.

At the Coyoacan Paper Mill (same ownership), a new stock in-



LATIN AMERICA



CARLOS GARCIA ROBLES, Consulting Engineer, Mexico City, and U.S. equipment representative, again sends news of Mexican paper industry.

let was installed on No. 3 machine.

Extensive improvements at Cartonera Moderna S.A., Mexico City, include installation of a 62 in. second-hand board machine; a new complete five vat wet end system purchased from Maschinenfabrik Zum Bruderhaus; a Swiss electric sectional drive; a pulp preparation system installed, consisting of a 10 ft. Shartle continuous Hydrapulper, one 10 in. vortrap, a Jones jordan and two No. 1 Jones refiners. Operations are expected to start in Oct., 1954.

The Atenquique (Jalisco province) kraft pulp and paper mill will install a new digester and is contemplating the installation of a bleaching plant.

The new kraft installation at San Rafael Paper Mfg. Co., south of Mexico City, is under trial and a bleaching plant has been bought from Karlstads M.W.; also underway is a semi-chemical pulp plant.

At La Aurora S.A., in Mexico City, new plant buildings are completed and installation work for a new Esher-Wyss paper machine has been completed, and operations began in April, 1954.

El Fenix Paper Co., Mexico City, has put into operation a Harland electric sectional drive, Ross Engineering hood and also a Ross Grewin system and felt conditioning unit. They also installed a new Voith stock inlet; a Masson Scott winder and supercutter.

Plans for the newsprint and groundwood mills of Aserraderos Gonzalez Ugarte S.A. are well advanced. This 40-year-old Chihuahua lumber firm expects to be the first newsprint producer in Mexico and to integrate a groundwood mill with lumber operations. Jorge R. Roldan is head of its pulp and paper department.

Celulosa de Chihuahua S.A., which has engaged Snia Viscosa, Italian engineering firm, with 50% government backing for a dissolving pulp mill, was continuing with its plans.

MEXICO—PAPER CONSUMED

(in thousands of short tons)

	Printing (no news)*	*Writing & Fine*	*Coarse & Wrap*	*Tissue*	*Paper Board*	*Total (Include others)*
1948	20	23	59	7	47	165
1949	19	27	60	8	49	171
1950	25	32	75	12	54	209
1951	29	36	78	16	57	226
1952	29	33	76	15	63	230
1953	30	35	79	18	68	240

* Mexico has imported about 60,000 tons of newsprint annually in recent years.

MEXICO—PAPER PRODUCED

(in thousands of short tons)

	Printing (no news)*	*Writing & Fine*	*Coarse & Wrap*	*Tissue*	*Paper Board*	*Total (Include others)*
1947						138
1948	17	20	54	4	44	147
1949	18	23	58	5	49	156
1950	22	25	52	4	45	150
1951	27	35	77	13	56	217
1952	25	30	70	2	60	198
1953	26	31	75	0	63	201

* There is no newsprint made in Mexico.

MEXICO—WOODPULP

(in short tons)

	Produced	*Imported*
1937	18,636	
1946	27,010	
1947	56,314	
1948	78,880	32,933
1949	71,500	45,000
1950	77,000	36,500
1951	94,000	56,000
1952	90,000	60,000
1953	92,000	54,000

ARGENTINA

Self-Sufficiency is Goal

Population: 18,379,000; *Per capita paper consumption:* 44 lbs.

Paper mills: 30; *Woodpulp mills:* 4

Production (sh. tons)	*1953*	*1952*
Paper	191,925	220,006
Chemical woodpulp	33,421	34,615
Mechanical woodpulp	9,968	7,014
Paper imports	37,025	178,509
Woodpulp imports	39,173	94,978

Principal paper grades made:

Newsprint	19,960
Kraft	39,114
Sulfite	11,669
Book & writing	39,652
Paperboard	69,553
Cigarette and fine	4,089
Others	7,888
	191,925

Principal paper imports from: Finland, Sweden, Norway

Principal woodpulp imports from: Finland, Sweden

THE MOST IMPORTANT development in the Argentine pulp and paper industry in 1953 was the government's decision to protect the home industry 100%. To this effect, various decrees were issued, permitting greater ease of mill operations than in 1952, a crisis year. A further development is the placing of newsprint production under government control.



SILVIO GAGLIARDI (left), Vice President, Director and Manager of Celulosa Argentina S.A., controls the largest paper group in Argentina. UMBERTO POMILIO (right) is founder of Celulosa Argentina and also inventor of famous Pomilio process, continuous pulping and bleaching process for vegetable fibers, used in many countries.

A drastic cut in paper imports followed the decision to protect the home pulp and paper industry, as can be seen by glancing at the tables. Practically no paper import exchanges were granted by the Central Bank of the Argentine Republic, with the exception of 30,775 short tons of newsprint. This too, was a terrific drop from 95,484 tons in 1952 and a still greater reduction from the 162,932 tons in 1947. Part of this loss was made up by a new newsprint machine now in operation at Celulosa Argentina S.A.

Considered as "practically" the founder of this most important of Argentine mills is Umberto Pomilio, inventor of the "Celdecor-Pomilio Process," a continuous caustic soda and bleaching process used in many paper manufacturing countries.

Consideration is being given to

ARGENTINA—PAPER BOARD AND BOARD

(in short tons)

	Imports	*Production*	*Total*
1949	240,836	195,565	436,401
1950	211,949	232,548	444,497
1951	212,215	253,667	465,882
1952	178,509	220,006	398,515
1953	37,025	191,925	228,950

ARGENTINA—WOODPULP

(in short tons)

	Imports	*Production*	*Total*
1949	76,519	38,191	114,710
1950	77,476	41,842	119,318
1951	141,622	45,295	186,917
1952	94,979	41,628	136,607
1953	39,173	43,390	82,563

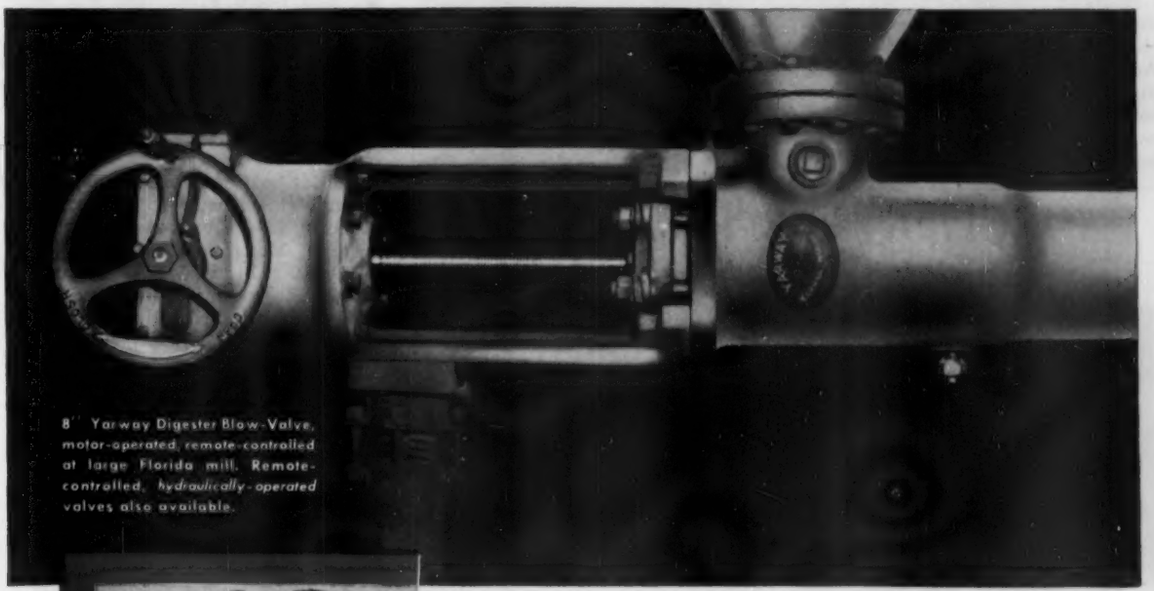
ARGENTINA—NEWSPRINT IMPORTS

(in short tons)

1949	112,012
1950	104,621
1951	117,082
1952	95,484
1953	30,776

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...with new 17/4 PH Stainless Steel Plungers



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This 17/4 PH Stainless Steel Plunger has corrosion-resistant properties approaching those of chrome-nickel steel. In addition it has a hardness of 400 Brinell. Hard monel split plunger head bushing also contributes to longer life.

Typical experience has been in a large Florida mill. After 23 months service an 8" Yarway Digester Valve was dismantled for inspection. The 17/4 PH plunger *was in perfect condition—not a scratch on it.* In all that time the packing had not been changed or repacked, and there was *no liquor leakage.* Outage time of digesters has been reduced to a minimum.

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the erection of 8 or 10 pulp mills to augment the four now in existence. These four are Celulosa Argentina S.A., Papelera Rio Parana S.A., Celulosa Rio Segundo S.A. and Compania Papelera del Norte de Santa Fe S.A. Actual fruition of these mills will, of course, greatly reduce imports.

Julio Cesar Lera, vice president of Francisco Lera Co., a financial enterprise in Buenos Aires, who sent this report to PULP & PAPER, concludes with the observation that Argentina's standard of living is rising steadily, resulting in greater consumption of paper, which will in turn have a great influence on home production.

PERU

Plan Newsprint Mill

Population: 8,714,000; *Per capita paper consumption:* 7 lbs.

Paper Mills: 6

	1953	*1952*
Paper Production	24,000	24,000
Newsprint imports	12,000	12,000
Pulp imports	13,000	13,000

Principal imports from: Canada, Finland, Sweden, Norway, U.S.

PREDOMINANT FACTOR towards self-sufficiency in paper requirements for Peru is the need for newsprint production. Approximately 12,000 tons of Peruvian 36,000 annual paper and board consumption is newsprint and although the home industry can just about meet the paper and board needs, there is no newsprint production at present in Peru.

Estimates of newsprint requirements indicate that Peru seeks to develop its newsprint production to 12,000 tons by 1955, 16,000 by 1960 and 22,000 tons by 1965. Correspondingly, capacity increases in paper and board production will be increased 5,000 tons by 1955, 16,000 tons by 1960 and 29,000 tons by 1965.

As reported in this section last year, the Banco de Fomento Agropecuario has conducted research into use of the cetico tree, one of the most rapidly-growing trees in the world. It matures in 5-8 years to about 1 ft. diameter with a length of about 20 to 30 ft. According to Alfredo Mastrokalo, engineer of Corporacion Peruana del Amazones, Lima, Peru, this pulp would be used with chemical pulp by soda-chlorine process from cane bagasse and/or rice straw or the chemical pulp might be imported.

The main purpose behind this research is to conserve Peru's foreign exchange resources and to develop the Amazon basis. Capacity of such a mill is estimated at 18,000 tons a year. According to UN committee observers, the project seems economically feasible. Studies made in England and France show that cetico possesses excellent possibilities for chemical pulp as well as mechanical pulp and newsprint.

The Peruvian government has also granted industrial protection for the construction of a modern 50,000 kraft type bag plant which is expected to begin operations by mid-1955.

PERU—IMPORTS

(In thousands of short tons)

	Ground-wood	*Chem. Pulp*	*News-print*	*All Paper*
1947	0.2	2.4	7.4	11.4
1949	0.02	6.8	6.3	20.6
1950	0.8	7.9	9.0	20.9
1951	0.5	6.8	11.7	23.1
1952		10	11	N.A.
1953		13	12	N.A.

N.A.—Not available

GUATEMALA

Fate of Mill in Doubt

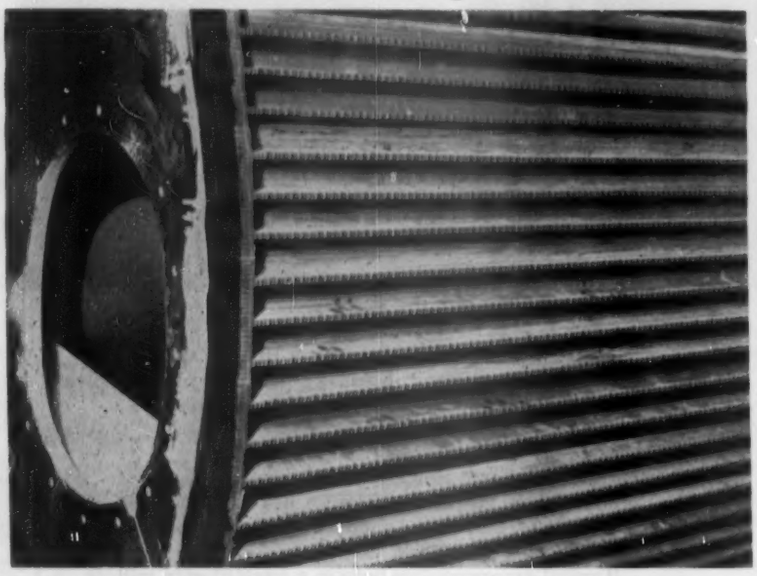
Population: 2,887,000; *Per capita paper consumption:* 4 lbs.

Pulp and Paper Mills: 1

WORLD POLITICAL intrigues and even a revolution made it extremely difficult to get news from Guatemala in 1954 and it is doubtful if much pulp and paper was made.

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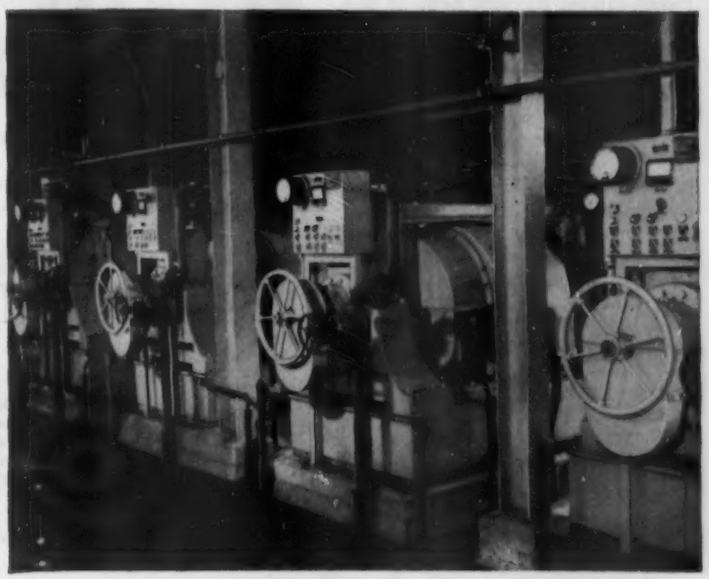
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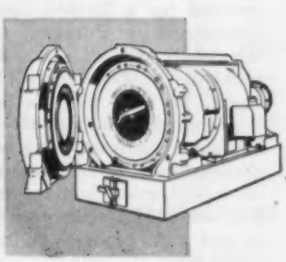
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PULP REFINERS



However, Guatemala is still famous as the first country in the world to ever make paper out of lemon grass after the oil was removed for a major product. PULP & PAPER carried the first news of this cylinder machine paper mill near Guatemala City, which made 9 pt. and .035 paperboard. The mill was later shut down, however, for lack of markets. No word has been received of it being started up again.

A young millionaire, Minor Keilhauer, founded this company and how he fared in the revolution was a mystery. Mitchell Thom, former Canadian superintendent, started up this mill, but is now in Mexico City, as manager of a paperboard mill.

Guatemala and other Central American countries imported 1,898 tons of paper from Finland in 1953, compared to 440 tons in 1952. Newsprint imports to these countries from Finland increased from 45 tons in 1952 to 450 tons in 1953.

COLOMBIA

New Mills Encouraged

Population: 11,266,000; *Per capita paper consumption:* 11 lbs.

	1953	1952
Mechanical pulp imoorts	3,000	——
Chemical woodpulp imports	4,000	3,000

Principal paper and pulp imports from: U.S., Canada, Sweden, Finland, Norway

AMERICAN AND EUROPEAN, especially German and French, firms are interested in setting up a newsprint mill in Bogota, Colombia. Preliminary investigations by the Institute de Fomento Industrial reveal that such an enterprise would be economically profitable. To encourage such undertakings, the Colombian government announces that there is an exemption tax of 75% of income, for the people who start the first three paper mills in that territory.

Colombia's one paper mill, Carton de Colombia, S.A., described in this section last year, produced 1,150 tons during the first half of 1953. Production costs of its kraft paper however, are reported to be high.

Plans are also underway for a new fiberboard and cardboard mill in Barranquilla, to be located on the Cararra River. Production is expected to start in about 14 months, according to the APPA, and research will then be made concerning the manufacture of newsprint from the tropical woods in Colombia.

COLOMBIA—IMPORTS
(In thousands of short tons)

	Acetate-Rayon Pulp	Paper Pulp	Newsprint	All Paper
1946	1.8	0.2	11.2	27.5
1948	2.4	0.2	15.5	35.3
1949	1.2	0.2	13.3	40.7
1950	2.6	0.2	20.9	54.0
1951	N.A.	N.A.	25.4	N.A.
1952	2	1	28	N.A.
1953	2	7	20.4	63.3

Colombia imported 10,564 tons of paper from Sweden in 1953, of which newsprint amounted to 1,074 tons. Paper imports from Finland rose from 455 tons in 1952 to 3,772 in 1953. Writing and printing papers comprised the bulk, 3,003 tons.

REST OF AMERICA

Plans for New Mills

There are an estimated 35,000,000 people in Latin American nations not discussed in this section, using an average of 50 lbs. per person per year in Cuba to 3 to 10 lbs. in most countries.

PER CAPITA CONSUMPTION is still low in Latin America, although rapid strides are being made and constant researches are under way to determine economic possibilities of the many fibrous materials indigenous to the various countries.

In British Guiana, the wallaba tree as a source of a pulp and paper industry has been studied by the British Government. Although a report declared that it was uneconomical, PULP & PAPER reported in this section last year that an international banking mission was giving it further study. Apparently, this latter report was favorable, inasmuch as the APPA advises that a commercial firm in British Guiana is interested in assisting a U.S. company establish a pulp and paper mill in that country. Estimated resources are 70,000 square miles of forests, principally wallaba trees.

A 15,000 ton a year pulp mill, using sugar cane bagasse is planned for Venezuela by the Corporacion Venezolana de Fomento. Another new company has been announced by Walter P. Paepcke, chairman of the board of Container Corp. of America. Under the name of Corrugadora de Carton, S.A., the company will construct a plant at Maracay to house newest and most modern equipment for the production of corrugated containers. The plant is expected to be completed and ready for operations by Fall of 1954.

Venezuela imported 26 tons of newsprint from Finland in 1953 as against 110 tons in 1952. Total paper imports from Finland totaled 2,674 tons, compared to 418 tons in 1952. Newsprint imports from Sweden in 1953 were 920 tons and total newsprint, sulfate, sulfite and greaseproof wrappings and paperboard were 7,497 tons.

Cuba and Uruguay have a remarkably high per capita paper consumption and produce a considerable portion of their own requirements. The Cuban government is still studying a new plan, according to the last word PULP & PAPER has received, to make pulp and paper from sugar cane bagasse. In spite of the fact that bagasse is more plentiful here than anywhere in the world, three attempts at bagasse mills have failed. Planned end use would be newsprint if the result of the study is favorable.

Cuba produced 55,000 short tons of pulp and paper in 1953. Pulp and paper imports totaled 93,000 short tons. Newsprint imports from Sweden totaled 1,579 tons in 1953; total paper imports were 1,669 tons. Total paper imports from Finland were 1,814 tons in 1953, a drop from the 2,791 tons in 1952.

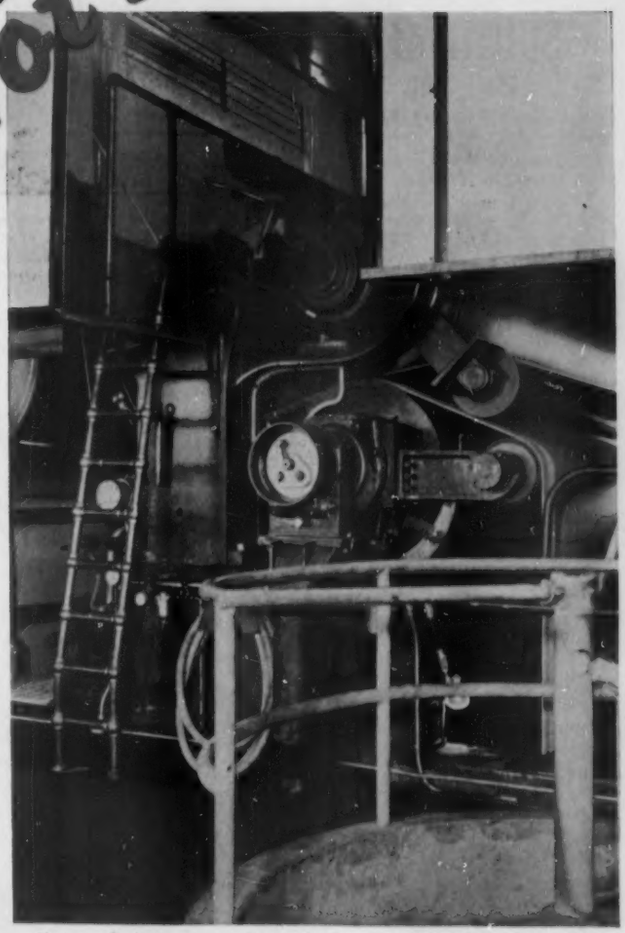
Total pulp and paper production for Uruguay reached 22,000 tons in 1953 and total imports were 33,000 tons. Total paper imports from Finland amounted to 4,187 tons, of which 3,827 were newsprint. This was a 1,500 ton increase for newsprint imports from Finland in 1952. Mechanical and chemical woodpulp imports from Sweden were 11,592 tons in 1953. Total paper imports from Sweden were 13,171 tons.

The market for kraft paper in Ecuador has expanded to the point where a new bag plant is being expanded in Quito with a daily capacity of 50,000 bags. Ecuador's 3,500,000 people use about five lbs. of paper a year.

The Dominican Republic and Haiti are also anxious to start producing newsprint from sugar cane bagasse.

Customs tariff immunity has been granted for a limited time by the Government of Paraguay to a party who plans to erect a pulp and paper mill there. Local raw materials would be used and the individual is prepared to import all necessary equipment without using scarce exchange funds. In return the government will grant him for ten years, free use of 50% of foreign exchange earned by exports of pulp and paper from the mill.

NEW Downingtown Suction Hot Press



Photograph of Downingtown Suction Hot Press recently installed in dryer section of #6 machine at Longview Fibre Co., Longview, Wash. This press tells the story.

Another Downingtown First—increases by 33⅓% dryness of an already well pressed, test liner sheet.

Before installation of Downingtown Suction Hot Press—sheet entered dryers at 815 FPM and 31% dry after an efficient suction couch and two suction presses.

After installation of Downingtown Suction Hot Press—(so called because of location in dryer section) sheet entered main dryer section 41% dry. Consequently speed increases are permitted.

This unbelievable increase in dryness is due to a combination of features, including engineered felt and paper runs, suction box size, roll diameters, use of predryers and nip pressure of 500# lin. in.

Contingent advantages include reduced refining horsepower, higher Mullen test.

Learn the entire story about the Downingtown Suction Hot Press from your Downingtown Sales Engineer. Write, wire or call.

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DESIGNERS AND BUILDERS OF PAPER BOARD AND FELT MACHINES SINCE 1880

MODERNIZATION IS PROFITABLE



AFRICA

SOUTH AFRICA

More Mills Built

Population: 13,153,000; *Per capita paper consumption:* 36 lbs.

Paper and/or board mills: 9 (including 2 start-ups in 1954)

Chemical woodpulp mills: 4 (including one non-integrated for rayon)

Bagasse mills: 1

*Production (short tons)	1953	1952
Paper and board	61,000	51,000
Chemical woodpulp	15,000	12,000
Straw & other pulp	1,500	....
Paper and board imports	170,000	200,000
Paper exports	negligible	
Woodpulp imports	10,000	5,000
Woodpulp exports	....	....

Principal paper grades made: Paperboard, Book and Writing, Wrapping, Tissue, Fine

Principal paper imports from: U. S., Canada, U. K., Scandinavia

Principal woodpulp imports from: Scandinavia

* *All figures are estimates*

THE UNION OF SOUTH AFRICA, a dominion within the British Commonwealth, is the principal division of Southern Africa.

Steady expansion characterized its pulp and paper industry in 1953. Demand for all grades was well sustained and mills had no difficulty in selling their production. Prices were generally below imported papers, even at the coastal centers. The outlook ahead is good, with mills booked for several months. Paper imports dropped somewhat as home production increased. Substantial decreases in unbleached imports were expected with 1954 startup of the new Tugela mill.



HANS BAARS, who wrote special report on African pulp and paper industry for PULP & PAPER, sent these two photos of mills. One at left is brand new mill at Port Elizabeth, Cape Province of Novobord, Ltd., which uses waste wood from sawmills to make heavy boards. Mr. Baars didn't identify mill at right, which could be any of new mills in the Union of South Africa.

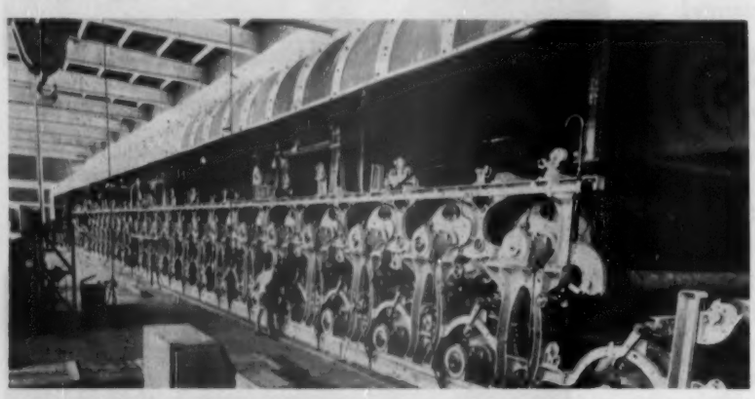
Two reports on this area were sent to PULP & PAPER by J. E. Henderson, general manager, South African Pulp & Paper Industries, Ltd., and Hans Baars, South African pulp and paper engineer. An interesting sidelight is that H. Crabtree of Canada is listed as a director of SAPPI, the only North American on the list.

By J. E. Henderson
South African Pulp & Paper Industries Ltd.

The expansion of the industry in South Africa has continued steadily during the past year. Our company's mill at Enstra remains the only producer of bleached printing and writing papers, and its output has risen as the Walmsley 120 in. Fourdrinier machine (installed in 1952) has increased in operating efficiency. The pulp plant has been enlarged to meet the additional demand by the installation of a fifth digester. Work has commenced on erection of the new 75,000 lbs/hour John Thompson boiler which will complete the present expansion plan.

In the unbleached field this company's new kraft pulp and paper mill in Zululand was to go into production in June 1954 (at Mandini, in Natal, mouth of the Tegula River). Initial target output is 38,500 tons a year of kraft papers, but large portions of the plant have been designed for 77,000 tons a year and expansion to this scale of production is planned for the near future. (It will use pine and gum; has a large British-made machine, with room for a second).

Ngoye Paper Mills Ltd. brought their 6,600 ton per annum mill in Natal to production in July 1953. This mill produces liner and fluting papers from bagasse, drawn from the neighboring sugar industry, and is also scheduled for early expansion.



AFRICA'S LARGEST PAPER MACHINE (170 in.) in South African Pulp & Paper Industries mill in Zululand. Machine makes 100 tons a day of sulfate.

By Hans Baars
Pulp and Paper Mill Engineer

Apart from newsprint, and equal tonnage of strong kraft paper and



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THIS BRAND NEW 100 ton a day sulfate mill of South African Pulp & Paper Industries in Zululand began operations in March, 1954.

small quantities required of special types, the South African market will be able to obtain its paper and board needs from the local industry by the end of 1954.

At Springs in the Transvaal Province, not far from Johannesburg, a board mill of South African Board Mills, Ltd., with headquarters in Durban, is being built to make up to 30 tons from waste paper and imported pulp. There is a modern Hydrapulper stock preparation plant and a Multivat machine will be installed.

The new mill at Felixton, Natal, of Ngoye Papermills Ltd., is producing a satisfactory fluting medium for the corrugated box industry from sugar cane bagasse. A second paper machine has been ordered from Germany to more than double capacity, by which they will be able to supply all the fluting required in the country, as well as other qualities.

Just north of Durban, Natal, the large board mill of South African Board Mills Ltd., located at Umgeni, which has a capacity of up to 130 tons per day, will soon start operating their semipulp plant built to free quantities of waste paper for the mill at Springs.

The two fiberboard mills, one near Johannesburg at Boksburg, Transvaal, operated by Trans-African Paper Products Ltd., and the other at Port Elizabeth, Cape Province, S.A. Adamas Fibreboard and Paper Mill Ltd., have been producing for local market and export. Both mills have plans for expansion.

Little change was noticed in the operations of the small wrapping paper mill of Premier Paper Mills Ltd. at Kliprivier, also near Johannesburg, but they are improving their equipment now to make more and better paper.

Similarly, the little tissue paper mill of Cellulose Products, Ltd., at Crown Mines near Johannesburg, has been turning out larger quantities already.

Interesting construction work is going on at Umkomaas, south of Durban, Natal, for a 120-ton-a-day sulfite pulpmill of South African Industrial Cellulose Corp. Ltd., solely to make dissolving pulp from eucalyptus and perhaps other kinds of wood. Production is expected to start in the second half of 1955.

Other important users of South African wood for pulping are two building board factories, one at Estcourt, Natal, a mill of Masonite Ltd., and the other at Verulam, Natal, operated by African Building Board Corp. Ltd. Waste wood from sawmills is utilized by other groups to make heavy boards from chipped wood and resins; one of these factories, run by Novobord Ltd., has just been completed at Port Elizabeth, Cape Province.

MIDDLE AFRICA

Umali Mill Starts

Middle Africa's 80 million people—the Congolands, Cameroons, French West Africa, British and Portuguese East Africa, and Ethiopia—use from 5 lbs. to less than 1 lb. of paper per person per year.

HERE ARE REPORTS on North and South Rhodesia, Angola (Portuguese) and Belgian Congo where there are industry activities.

Hans Baars, South African pulp and paper engineer, who prepared a report on Rhodesia, says that the official opening of the Umtali Board & Paper Mills Ltd. at Umtah, Southern Rhodesia, was on March 1, 1954. This mill produces groundwood from locally grown pines, and also uses waste paper and imported pulp to produce up to 400 tons of board a month.

Mr. Baars also reports that the wrapping paper and fiberboard mill of Rhodesian Pulp & Paper Industries Ltd. at Norton near Salisbury, Southern Rhodesia, has no new additions. It has only been in operation since 1952.

BELGIAN CONGO

Population: 11,259,000; *Per capita paper consumption:* 11 lbs.
Pulp and paper mills: none
Paper imports (short tons) 13,772
Principal paper grades imported: Newsprint, Wrapping, Board
Principal paper imports from: Canada, Belgium, Switzerland, U. S., Union of South Africa

News about a pulp and paper mill in Mozambique, Portuguese East Africa, have been heard, according to Mr. Baars, who says that no construction has started to date and that neither market conditions nor material position seem to be too good.

A report on the Belgian Congo comes from C. Brau, director and chief of service of the government at Leopoldville. In spite of recent studies, the Congo does not yet have a paper industry. Imports rose in 1953 to 13.772 short tons of paper, board and all types of wrapping.

Several syndicates have studied the possibility of creating a pulp industry in the Belgian Congo. Several studies have been made on the papyrus which abounds in certain lakes of the colony. Costs, however, appeared to be prohibitive, and the research was abandoned.

The syndicate formed to build Congo cellulose mill, "Celluco," was set up in 1952. They carried out some research in the region of Lake Leopold II to find a forest area capable of supplying a mill with a capacity of 110,000 short tons a year.

EGYPT

Invite Mill Builders

Population: 22,000,000; *Per capita paper consumption:* 11 lbs.
Paper mills: 8
Straw or vegetable fiber mills: 1

Production (sh. tons)	*1953*	*1952*
Paper	25,850	25,520
Straw & other pulp	3,300	3,300
Paper imports	*	61,135
Paper exports	*	902
Woodpulp imports incldg. dissolving pulp	*	5,190

Principal paper grades made: Sulfite Book and Writing, Paperboard
Principal paper imports from: Scandinavia, Central Europe
Principal woodpulp imports from: Scandinavia
Principal paper exports to: Middle East
* Figures not available

PLANS TO DOUBLE paper production in Egypt are under study by the Egyptian government according to Dr. Hilmy Mattar, director general of the department of Industry, Min-



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And high availability is one of the many benefits of a B&W Recovery Unit. For nearly 20 years B&W Recovery Units have demonstrated economical operation and high availability in leading pulp and paper mills. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

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BOILER DIVISION



Dr. HILMY MATTAR, Director General of the Department of Industry, Ministry of Commerce and Industry, directs survey of paper situation in Egypt.

istry of Commerce and Industry, who writes the following report:

"In 1953, the government issued an invitation to all paper machine builders, companies or parties interested in paper mills to submit proposals to build a new paper mill in Egypt with an annual capacity of 20,000 metric tons. Indigent raw materials, such as straws and other available agricultural residues would be used. The government is now studying the several proposals received.

"A survey of local papermaking raw materials is being carried out to evaluate each. Another study of both marketing conditions and existing mills is being undertaken by this department to draw an accurate picture of the paper situation in Egypt."

NORTH AFRICA

Study Own Resources

North Africa's 60,000,000 people use from 11 lbs. in Algeria to less than 1 lb. in other areas per person per year.

AFRICA'S INCREASED AWARENESS of its economic potentials has created a corresponding consciousness of its forest wealth. Continent-wide studies are being made to determine the suitability of the varied fibrous materials for the manufacture of pulp and paper. The scarcity of raw materials on the European continent has drawn the attention of France and Germany, in particular towards Africa.

In her quest for raw materials, France has gone to her colonial possessions. In North Africa, according to a report by P. R. (Dick) Sandwell, Vancouver, B.C., paper mill consulting engineer, who toured Europe last year, experiments are being carried out with grasses, and research is underway in laboratories in metropolitan France and in field stations in Equatorial Africa on the use of tropical and sub-tropical woods. Mr. Sandwell, however, says that if the French had access to woods in the temperate zone, or pulp, they would not be too interested in substitute materials, because they are expensive to produce.

A 250,000 acre concession has been granted to the Society for the Utilization of Vegetal Raw Materials, a German organization, by the Liberian Government, for 80 years. The Society is interested in the development and exploitation of forest resources and establishment of forest industries. Plans include a chipboard mill and cellulose pulp plant. The great obstruction to utilization of Liberia's great forest wealth is inaccessibility.

Within the last few years, several paper mills have started up in North Africa, encouraged by the large amount of alfalfa grass available. Three mills near Casablanca produce a total of 25,000 tons of newsprint a year as well as other grades.

A new mill near Algiers produces about 26,000 tons of writing and printing paper and plans are now underway to expand its capacity considerably in the near future.

A 60,000 ton paper mill is planned near Tunisia.



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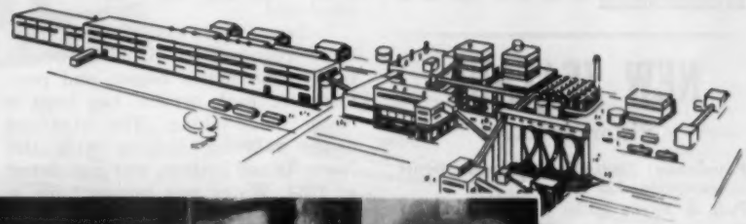
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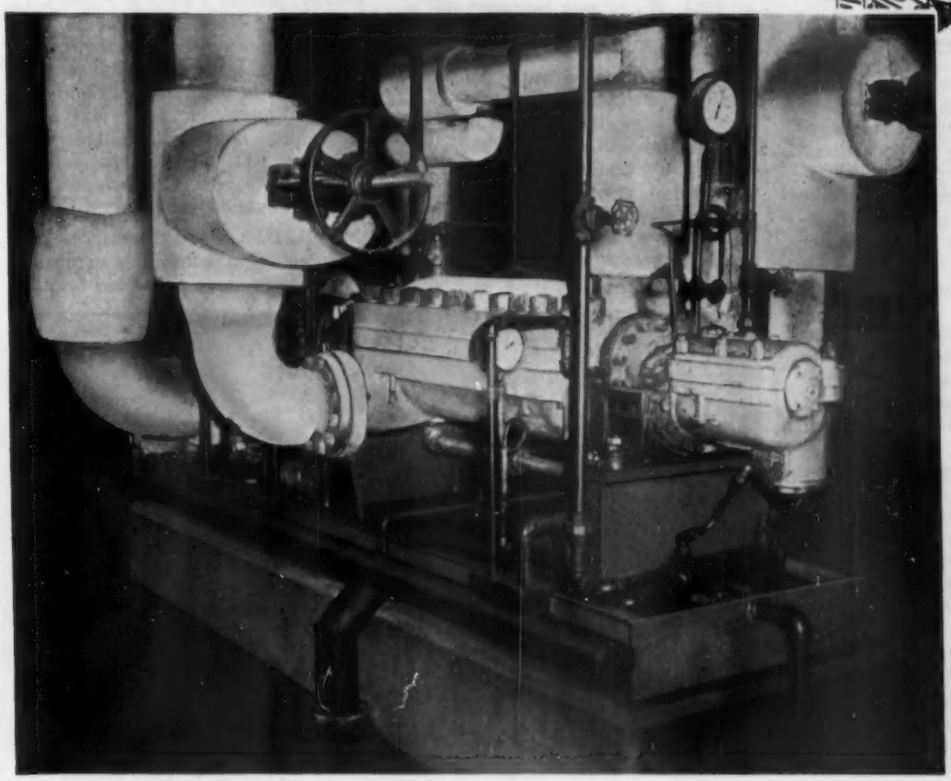
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Ingersoll-Rand feed water pumps

CHOSEN BY ST. REGIS PAPER COMPANY

for its new kraft paper mill





Above, a line sketch of the new St. Regis kraft mill at Jacksonville, Florida. At the left, the I-R boiler feed pumps in the powerhouse.

Three HMTA 7-stage 400 gpm pumps serve the mill's boilers with 227°F feed water at 900 psi.

Another milestone in the long-range expansion program of the St. Regis Paper Company, this new kraft mill at Jacksonville, Florida is recognized as one of the most efficient operations in the industry. With a capacity of 100,000 tons of kraft paper and board annually, it was designed and constructed under the supervision of the company's own engineers.

Three Ingersoll-Rand 7-stage feed water pumps, of the modern horizontally-split HMTA design with Unit-Type rotor assembly, serve the black liquor recovery, bark, and oil fired boilers. These boilers produce 429,000 lb/hr of steam at 625 psi and 750F. Two of the pumps are driven by turbines and the third pump is motor driven.

I-R multi-stage HMTA pumps provide high sustained efficiency, flexibility of operation, reduced maintenance and other important advantages inherent in the Unit-Type rotor design. They are available for pressures to about 1400 psi, temperatures to 650F and capacities to 1600 gpm. For further details, consult your nearest I-R representative.

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NEW ZEALAND

History is Made

Population: 2,000,000; *Per capita paper consumption:* 125 lbs.
Pulp & Paper Mills: 4
Woodpulp Production: 32,500 tons

THE PAST YEAR has been one of historic accomplishment in New Zealand. The new Kinleith mills of David Henry's N.Z. Forest Products Ltd. went into production, although formal opening did not take place until early this spring. Construction of Tasman Pulp & Paper Co.'s $77,000,000 mill, which will be ready for operation next year, made important advances.

Developments in the industry in New Zealand are largely tied to these two significant enterprises, the largest to be undertaken in that part of the world in the field of wood utilization.

Kraft pulp and paper were produced for the first time in New Zealand towards the end of 1953 at Kinleith, and regular shipments of unbleached pulp are now being made to Australia as a furnish for newsprint and other papers. Annual capacity of the Kinleith plant is 45,000 tons of unbleached sulfate pulp, 25,000 tons of kraft paper (mainly for bags), linerboard and general wrappings, as well as lumber, the sawmills of N.Z. Forest Products being integrated with the pulp mill.

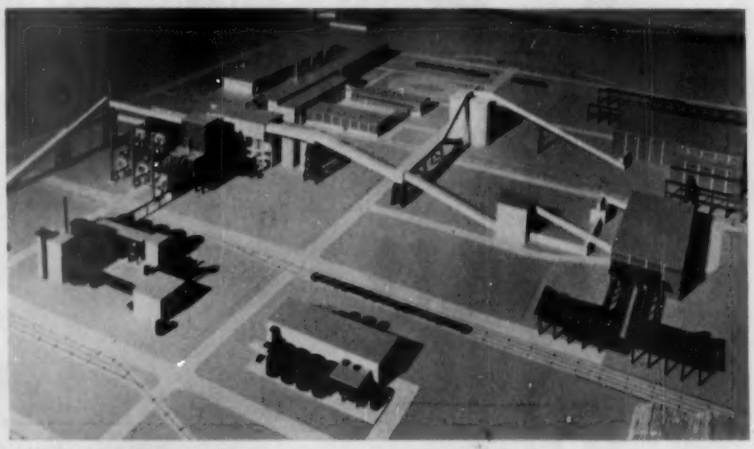
Five years ago the 100-acre site at Kinleith, surrounded by a 500 acre fire break, was pine forest—a part of what has become one of the world's most successful and commercially valuable exotic timber stands. Kinleith is near the center of the company's 176,000 acres of planted pine, 144 miles south of Auckland. Total estimated cost of the entire integrated project is $20,000,000. Nearly 2,000 people are employed.

Railway, water and electric power were required at Kinleith before pulp manufacture began, and provision of each service has been a major undertaking. The standard gauge railroad, linking with the North Island system, was completed in 1952. Water was tapped from a stream 5½ miles distant and pumped to the mill through 32-in. pipes. Up to 14,000,000 gals. of water daily are required. Process steam is generated in three boilers, the biggest being a Babcock & Wilcox soda recovery unit designed to create 50,000 lbs. of steam per hour when burning 350,000 lbs. of dry liquor solids per day. Chemicals in flue gases are recovered up to 95% in a precipitator.

It is believed that the Kinleith mill is the first in the Southern Hemisphere using woodpulp produced entirely in the country of establishment. Paper made by Kinleith is sent to the company's multiwall bag and container factories at Auckland, replacing imported paper.

Canadians have played an important part in the development of Tasman Pulp & Paper Co., whose mill site is at Kawerau, with a townsite for 3000 people being built nearby. Abitibi Power & Paper Co., whose head office is in Toronto, will manage the operation during its initial phases. Design and engineering have been in the hands of Sandwell & Co., Vancouver, B.C., and both companies have contributed key personnel. C. D Schultz & Co, Vancouver foresters, developed the forest utilization program.

M. H. D. McPhee, logging superintendent of a subsidiary company that is to produce pulpwood for the



FIRST THE MODEL . . .

Above, model of Tasman Pulp & Paper Co., New Zealand's first newsprint mill, developed by Sandwell & Co., Vancouver, B.C., consulting engineers for the $42,000,000 project.

AND THEN CONSTRUCTION . . .

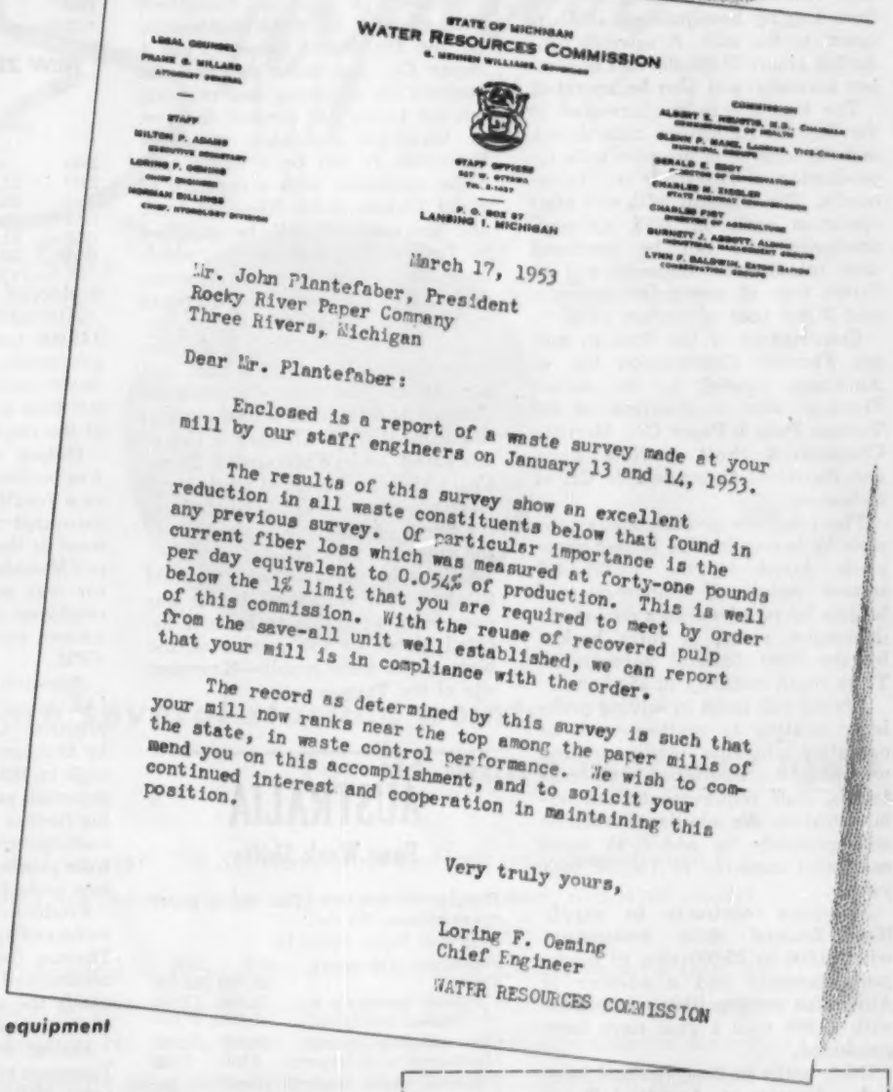
Below, New Zealand's Mt. Edgecumbe looms in background as construction on Tasman Pulp & Paper Co. gets underway. Stores building at left of mill; administration building at center; pulp drier room at right. Contractors are Merritt-Chapman & Scott (U.S.), Raymond Concrete Pile (U.S.) and Fletcher Construction (N.Z.)



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March 17, 1953

Mr. John Plantefaber, President
Rocky River Paper Company
Three Rivers, Michigan

Dear Mr. Plantefaber:

Enclosed is a report of a waste survey made at your mill by our staff engineers on January 13 and 14, 1953.

The results of this survey show an excellent reduction in all waste constituents below that found in any previous survey. Of particular importance is the current fiber loss which was measured at forty-one pounds per day equivalent to 0.054% of production. This is well below the 1% limit that you are required to meet by order of this commission. With the reuse of recovered pulp from the save-all unit well established, we can report that your mill is in compliance with the order.

The record as determined by this survey is such that your mill now ranks near the top among the paper mills of the state, in waste control performance. We wish to commend you on this accomplishment, and to solicit your continued interest and cooperation in maintaining this position.

Very truly yours,

Loring F. Oeming
Chief Engineer

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ADDRESS

CITY ZONE STATE

mill—an enterprise backed jointly by Tasman and the New Zealand government—was in the Pacific Northwest in May, placing orders for equipment and studying logging technique. He told PULP & PAPER that the high-lead system and various other forms of West Coast logging will be adopted; that truck roads will be built and that a 40-mile railroad will deliver the logs from logging headquarters at Murupara to the mill. A sawmill producing about 70,000,000 feet of lumber annually will also be operated.

The logs are to be harvested in the famous Kaingaroa state forest, and the long-term program calls for production of 23,000,000 cu. ft. annually. The Tasman mill will start operation early in 1955, although newsprint will not be produced until midsummer. Capacity will be 75,000 tons of newsprint annually and 37,000 tons of market pulp.

Constructors of the Tasman mill are Fletcher Construction Co. of Auckland, headed by Sir James Fletcher, who is chairman of the Tasman Pulp & Paper Co.; Merritt-Chapman & Scott of New York, and Raymond Concrete Pile Co. of Delaware.

The complete project, made possible by harvesting the largest man-made forest in the world—400 square miles of timber—planted largely by relief workers during the depression years, is fully backed by the New Zealand government. Trees reach maturity in 25 years.

Abitibi will assist in solving problems relating to matters such as operating schedules, quality control, wrapping, transportation, raw materials, staff requirements and administration. An additional machine will probably be added to boost newsprint capacity to 150,000 tons yearly.

Five-year contracts to supply New Zealand daily newspapers with 20,000 to 25,000 tons of newsprint annually and a number of Australian metropolitan newspapers with 20,000 tons a year have been concluded.

Other mills in New Zealand have had a busy year. Auckland Paper Mills was incorporated more than a year ago with a capital of $1,250,000 to manufacture tissue, and Westminster Paper Co. of New Westminster, B.C., has an interest in this project.

Other active companies include Whakatane Board Mills, and New Zealand Paper Mills.

Plan New Tissue Mill

Plans for the establishment of a mill for manufacturing tissue and other lightweight papers in New Zealand have materialized recently, and announcement is made that Westminster Paper Co., New Westminster, B.C., will share in the management of the operation along the same lines as Abitibi Power & Paper Co. of Canada will direct the management of the new Tasman Pulp & Paper Co.

Sandwell & Co., of Vancouver, B.C., which is doing the engineering for the $60,000,000 Tasman Pulp & Paper Co., has been awarded the contract for designing and carrying out the tissue mill project, the cost of which is estimated at about $2,000,000. It will be a single machine operation, with a capacity of about 15 tons daily. Bleached kraft and groundwood will be supplied by Tasman Pulp & Paper Co., which goes into production next summer, and sulfite pulp may be imported from this continent.

The mill is being built under the name Caxton Paper Mills Ltd., and Sir James Fletcher, chairman of Tasman, is associated with the group financing it. Neil Cropper & Co. of Auckland and Westminster Paper Co., which has exported tissue, wax papers and fruit wraps to Australasia for many years, have an interest in the enterprise.

Originally the plan was to build the mill near Auckland, but it was considered advisable to have it located closer to the source of the bulk of its pulp supply—Kawerau, site of the Tasman mill.

AUSTRALIA

Four Work Shifts

Population: 8,500,000; *Per capita paper consumption:* 130 lbs.

Pulp and Paper Mills: 14

Production (sh. tons)	*1953*	*1952*
Paper	186,500	235,000
Chemical woodpulp	70,000	77,000
Mechanical woodpulp	40,000	47,000
Chemical pulp imports	28,000	53,000
Mechanical pulp imports	1,500	6.000

Principal paper imports from: U. K., Sweden, Canada

STILL A LONG WAY from being self-sustaining in pulp and paper supply, Australia continues to make progress towards that goal.

The commonwealth uses about half a million long tons of paper and paperboard annually, and 16 mills help meet that requirement, although imports from the United Kingdom, Scandinavia and Canada are heavy. Australia's exports of paper are negligible and no woodpulp is shipped out.

NEW ZEALAND—PAPER-BOARD

	Wrapping Paper tons	*Cardboard tons*	*Fibre Board sq. ft. (thousand)*
1940	6,253	6,620	——
1945	6,335	14,284	21,958
1947	7,619	13,329	30,416
1949	8,596	14,175	39,624
1950	7,111	14,676	43,283
1951	7,541	17,320	47,766
1952	8,100	17,700	48,195
1953*	9,000	18,000	50,000

* Estimated by PULP & PAPER

NEW ZEALAND—WOODPULP

	Production tons	*Imports tons*	*Consumed paper and board mills tons*
1940	5,881	7,090	12,867
1949	21,438	14,523	29,772
1950	23,714	9,598	32,901
1951	24,612	7,595	31,462
1952	31,000	10,500	41,500
1953*	32,500	11,220	43,110

Australian mills supply about 145,000 tons of woodpulp, used by producers; 70,000 tons of newsprint, 80,000 tons of other papers and 120,000 tons of paperboard, the balance of the requirements being imported.

Output of wrapping and boards was boosted to record level last year as a result of the fourth work shift instituted during the past year at most of the mills of Australian Paper Manufacturers Ltd. Another factor was acceptance by paper mill employes of an incentive payment scheme covering 2,500 employed by APM.

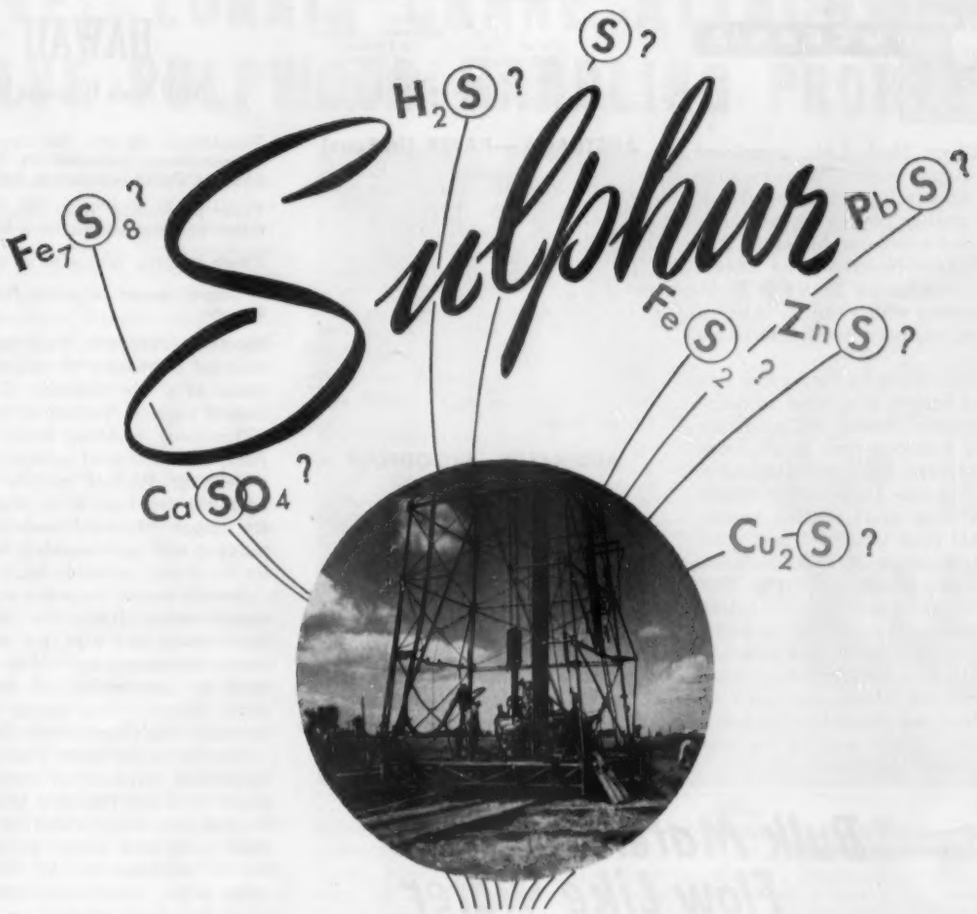
Associated Pulp & Paper Mills Ltd. is extending the range of its products. Output of eucalypt pulp by this company was at an all-time high in 1953. A larger proportion of imported pulp was introduced pending further extension of the mill and manufacture of some types of paper from practically 100% imported pulp was undertaken.

Production of vegetable parchment at Papermakers Ltd., formerly Thomas Owen & Co. (Aust.) Ltd., commenced early in 1953 and recently the company had the first run of its greaseproofing machine.

Easing of power restrictions in Tasmania enabled Australian Newsprint Mills and Australian Pulp & Paper Mills to lift their production rates. The former increased from 34,000 long tons per year to about 70,000 tons. First shipments of New Zealand pulp have been received by this mill.

Commercial production of fiberboard at Tasmanian Board Mills started late in 1953 and the capacity of the plant has been increased substantially beyond the original plans to 16,000 tons a year.

Wiggins Teape & Co. (1919) Ltd.



. . . there are several starting points for its many uses and users

"What shall we use?" This question always confronts management when it is considering raw materials to be used in operating processes, and is not always easy to decide.

In the manufacture of sulphuric acid, the use of sulphur in some form is mandatory, whether it be elemental sulphur or sulphur in combination with other elements. No single factor can determine which raw material should be used. Relative supply situation, cost of transportation, cost of plant and cost of use are all considered by management.

For three decades elemental sulphur as a raw material has had first choice as a solution of the problem, "What shall we use?"

Texas Gulf Sulphur Co.

75 East 45th Street, New York 17, N. Y.

Sulphur Producing Units

- NEWGULF, TEXAS
- MOSS BLUFF, TEXAS
- SPINDLETOP, TEXAS
- WORLAND, WYOMING



and William Nash Ltd., prominent British paper manufacturers, have jointly undertaken manufacture of certain quality papers hitherto imported, and a two-machine mill is to be built near Nowra, to be known as the Shoalhaven Paper Mill. A new company with a capital of about $7,000,000 has been formed to operate it.

Although output of wrapping papers and boards increased by one-third between October 1953 and May 1954 and is now at peak levels, sales have continued brisk and demand is expected to rise. Demand for locally made writing and printing papers which had been well sustained until the early summer of 1953 has since been running about 10% lower. The decline is due in part to lower prices of comparable materials from overseas. Delay in recovery has been attributed to the unwillingness of buyers to commit themselves prior to the decision on the amending tariff application which was to be announced early this year.

AUSTRALIA—GENERAL

	No. of Mills	No. of Employes	Value of Materials (In Thousands of Dollars)	Value of Output
1951	14	6,536	$23,300	$37,800
1952	14	6,750	$24,000	$42,000
1953	16	7,237	$35,000	$70,000

AUSTRALIA—PAPER (in Tons)

	Production Newsprint	Production Board	Total All Paper & Board
1946-47	31,734	76,563	185,870
1947-48	31,335	83,213	192,320
1948-49	30,260	85,307	193,460
1949-50	30,472	99,519	205,196
1950-51	33,000	103,000	220,000
1951-52	33,000	110,000	235,000
1952-53	70,000	80,000	270,000

	Paperboard Imports	Paperboard Prod.	Wrapping Paper Imports	Wrapping Paper Prod.
1947-48	770	70,246	1,000	40,000
1948-49	23,602	85,307	18,000	16,543
1949-50	17,403	99,519	n.o.	30,806
1950-51	42,400	103,000	n.o.	36,229
1952-53	40,000	120,000	15,000	40,000

n.o.—not obtained

AUSTRALIA—WOODPULP

(in thousands of short tons)

	Chemical Prod.	Chemical Imports	Mechanical Prod.	Mechanical Imports
1949	63	44	38	3
1950	68	37	38	1
1951	75	46	40	2
1952	77	33	47	6
1953	70	28	40	1.5

Source: Australian government, U. S. Pulp Producers Assn., Canadian P & P Assn.

Overall production is estimated at 273,000 tons in the 1953-54 period, compared with 186,000 tons the previous year. The increases were mainly in newsprint, wrapping papers and paper boards.



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SYNTRON COMPANY
659 Lexington Avenue Homer City, Penna.

HAWAII

Still Seek Bagasse Use

Population: 480,000; *Per capita paper consumption:* included in U.S. data (PULP & PAPER estimate is 166 lbs.)

Paper production: none. One mill produces building boards from bagasse.

Paper imports: estimated at 40,000 tons

Principal paper imports from: U.S., Canada

HAWAII'S PRINCIPAL pulp and paper interest continues to center in bagasse as a raw material. Consumption of bagasse, pulped in the Canec (Flintkote) building board mill at Hilo, has increased substantially.

Seeking further outlets for the 1,000,000 dry tons of crushed stalks, the sugar planters' own study of pulping and papermaking is now in its third and probably final year.

Hawaii draws its paper and board requirements from the mainland, liner board and 9 pt. for pineapple cases, newsprint and other supplies used by converters and consumers alike. Shipping box, set-up box and specialty bag plants are in Honolulu.

The Hawaiian Sugar Planters' Association's experiment station, engaged in sugar industry by-product studies, has been aided by Crown Zellerbach and other pulping research facilities in the U.S. Like other sugar cane areas, where bagasse has been studied or actually used, it has been found that Hawaiian bagasse can be pulped successfully on a small scale. Methods best adapted to Hawaii must be carefully selected, and the economic possibilities established for sales items. Newsprint remains an unlikely outlet for Hawaii's bagasse, which already has a value based on its full use as fuel on the 28 plantations.

George W. Aljian, coordinator of the association, concedes that Hawaii's place in the pulp and paper world is currently just a hope, but technical and economic data hold definite promise.



T. J. NELSON, Asst. to Hawaiian Sugar Planters' Assn's By-Products Coordinator, devotes major non-administrative time to pulp and paper. He toured U.S. in 1954 in interests of bagasse research and by-products.

NOVEL LORAIN CRANE ATTACHMENTS SOLVE PULPWOOD HANDLING PROBLEMS

In the pulpwood industry, as in many other industries, material handling problems arise that cannot be efficiently met by standard or conventional equipment available on the market. The development of highly specialized equipment for unusual applications is frequently not the answer because of excessive costs in engineering design and construction of specialized tools. Therefore, it is advantageous to consider the adaptation of standard manufactured equipment to special needs by the use of attachments.

How Two Problems Were Solved

Engineers of The Thew Shovel Company, Lorain, Ohio, worked closely with two pulpwood operators to develop special attachments that would solve their individual problems. Each of these problems was an entirely different one but, through careful study of job requirements and the needs involved, several unique, novel designs were developed which exactly fill the bill.

One of the problems involved improved visibility for the operator, so he could see the material deep in the hold of LST barges. The other problem involved the unloading of pulpwood from rack cars into the flume conveyor. How these problems were solved by Lorain are illustrated in the accompanying photos.

Pulpwood Handling Specialists

Twenty-five years ago, Thew-Lorain made its first contribution to the pulpwood industry by perfecting the pulpwood grab. Since that time Lorain has developed many special tools and attachments to solve special pulpwood problems. Today, Lorain offers labor and time saving devices such as the Rake, and special gooseneck booms for handling brindled wood . . . grabs, grapples, slings can be had at your option to handle pulpwood in any form — jackstrawed, piled or bundled, wet, dry or frozen. Mountings include a wide assortment of crawler or rubber-tire types. Crane capacities range from 6 to 61 tons. Lorains work at the mill, in collection yards, or in the woods to solve most any problem, special or otherwise.

The Thew Shovel Company is really in the pulpwood handling business. Thew-Lorain Distributors go one step further to lend assistance in applying Lorain pulpwood handling cranes to your problems. In the Lorain line are more than 136 different possible combinations, many of them the answer to lower cost pulpwood handling.



Elevated Controls Improve Barge Unloading Operations

Bowater's Newfoundland Pulp & Paper Mills, Ltd., Corner Brook, Newfoundland, collect and store about 350,000 to 400,000 cords of wood during the summer to take care of their winter needs. Most of this wood comes to the mill in LST barges, each carrying about 2,000 cords of 4 ft. wood in the hold and on the deck. Four cranes on the docks, with pulpwood grabs, unload the barges in 15½ to 17 hours. One of these, a Lorain 820-K equipped with elevated cab and controls to give the operator improved visibility of the grab when deep in the hold, is shown above. Wood is unloaded into a mill pond on the opposite side of the dock. During the winter the Lorains load block piles to mill conveyer. Bowater operates a total of 17 Lorains.



Gantry-Mounted Rake Unloads Rack Cars in 5 Minutes Each

At Union Bag & Paper's Savannah (Ga.) Plant, this Lorain-TL Rake is mounted on a gantry which spans the flume and which is propelled by the Crane's engine along tracks on either side of the flume. As strings of rack cars come in, the Rake simply swings to drop its 5 ft. x 3 ft. board behind the stacked logs; then with a pull toward the machine, it easily "rakes" the logs off the car into the flume. Average unloading time is 4 to 5 minutes per car.

THE THEW SHOVEL CO., LORAIN, OHIO

THEW LORAIN®

What is Outlook for Dissolving Pulp? Will Late 1950's See More Mills Needed?

By REX VINCENT
Technical Director
Bulkley, Dunton Pulp Co.

THE SPRING of 1954 witnessed a series of events never before occurring in the pulp industry and it is very unlikely that it will ever happen again. Within the space of 30 days the supply of the dissolving grades of woodpulp was augmented by nearly 1,000 tons per day as the new mills of Buckeye Cellulose, Rayonier, and Ketchikan came into production almost at the same time. That figure is probably a conservative one as mills always produce more than they were designed to make.

These mills, with other expansions either completed or in the works, will raise the North American supply capacity of purified wood cellulose up to 1,710,000 tons per year effective in 1955. It is probable that the supply side has now been stabilized and will remain at this level for the next five or six years waiting for consumption to catch up with it.

For the first time in nearly 15 years there is sufficient capacity to assure everyone of an ample, dependable supply and for any reasonable business period. Any aspect of monopoly that may have hung over this section of the industry is now completely shattered. There are, in North America, ten producing companies operating 16 mills. This makes an impressive list and it is lined up as follows:

Company	*Number of mills*
Rayonier Inc.	4
Weyerhaeuser	1
Brown Co.	1
International Paper	1
Buckeye Cellulose	1
Ketchikan Pulp Co.	1
Fraser Cos., Ltd.	1
Canadian International Paper	3
Alaska Pine & Cellulose	2
Columbia Cellulose	1

Now that the engineers and financiers have built this supply, it remains to be seen as to what steps will be taken to properly utilize it.

Need for Better Research

At this point the author would like to permit the scientists to speak. Every technological advance proceeds on the knowledge developed from theoretical work done to lay a foundation or just to add to the knowledge. The cellulose-based industrial group is unique in that it has built itself upon a foundation of trial and error experimenting and there is yet no real basic knowledge.

TABLE I

U. S. PURIFIED WOOD CELLULOSE
(In Short Tons)

Year	*Production*	*Imports*	*Exports*	*Net Available*
1938	171,650	65,220	72,800	164,070
1940	288,500	113,945	115,204	287,241
1943	369,731	129,380	22,884	476,226
1944	429,545	132,675	10,729	551,491
1945	355,820	146,030	13,030	488,820
1946	295,680	198,540	9,300	484,920
1947	408,460	248,070	14,570	641,960
1948	421,924	239,842	14,665	647,101
1949	371,422	154,348	3,857	521,913
1950	473,210	238,856	27,284	684,781
1951	615,776	230,038	32,944	812,920
1952	705,828	223,340	61,850	867,315
1953	678,180	255,781	66,513	867,448

Source: U.S.P.P.A.



REX VINCENT, author of this article for the WORLD REVIEW, stresses bright future for dissolving pulp.

There is no complete understanding of the chemistry of the sulfite process for pulping nor of the sulfate. The industry throws away a ton of lignin for every ton of pulp it makes, simply because it just doesn't know what lignin is. In the spring at a chemical society meeting, one of the leaders of the viscose industry went into great detail to point out how little is really known about the viscose chemical reactions. No one can spell out what a pulp should be in order to acetylate readily, and technical people are still arguing about how the pulp fibers bind themselves together in order to form a sheet of paper.

The cellulose industry, and that includes all of it—pulp and paper, printing, rayon, acetate, plastics—has about run out of what it can do on a trial-and-error experimental basis. Basic theoretical research must be done, and it must be done by industry, not by graduate students here and there in colleges. This work is deep and difficult and requires teams of the best brains and skills available.

It must be done or the industry will begin to shrink as the synthetics move in, as they are moving in on the textile front and establishing bridgeheads in the packaging field. Potatoes are appearing in polyethylene bags, and Saran-Wrap is now available for the kitchen.

Perhaps this oversupply of cellulosic raw material will stimulate some of the industrial units to put their scientists to work on basic re-

search for a while instead of process and production. It is necessary now to know a little bit more about what we are working with before we can do much more with it, and we must know a great deal more about what we are throwing away. If scientists can create nylon, synthetic rubber, split the atom, or put it together again in an H-bomb, they can also find out what the cellulose molecule is and how to change it around.

1953 a "Normal Year"

Most reviews of the economic activity of the nation for 1953 concluded that it was a very good year, with the levels of output making new highs in many industries. Statistics presented in other parts of WORLD REVIEW NUMBER of PULP & PAPER show that production and consumption of paper in the United States established a record high.

The year 1953 will probably also come to be regarded as the first "normal" year for quite some time. There was no war stimulation. There were no government controls either on production, use, or price. There were no troublesome shortages. In the particular field of purified wood cellulose, 1953 would probably be designated as just a fair year. Most producing units operated on a part-time basis until the fourth quarter, when an export demand enabled them to operate all units full time.

As the statistics are examined, it becomes apparent that although it might have been "normal," 1953 was a bit mixed up.

For example, in *Table I* production in the U.S. is down from 1952. The decreasing trend in imports is reversed—they are up. Exports are up slightly, but the net available for the American industry turns out to be almost the same as 1952.

Although U.S. production is lower than 1952, it is higher than any previous year, and it would probably have been higher than 1952 if during that year there had not been inventory accumulation at both ends, producer and consumer. During 1953 the same net available quantity existed as in 1952, but in 1953 producers' inventories were lowered by 4,000 tons and consumers' inventories by 24,000 tons, so that actually there was an additional 28,000 tons consumed even though the net available figures are the same.

This change in inventories must also be kept in mind when examining the statistics in *Table III*. In that table the figures are on the basis of North America and they show that the net available for the continent was about 31,000 tons less than 1952, and this is very close to the inventory shift mentioned above which took place in the U.S.

Notice that North America production is slightly up over 1952 even though the quantity available for the continent is down; this is due to the increase in exports. North American exports in 1953 increased considerably over those in 1952: 33,000 tons, or nearly 20%. U.S. exports increased by only 4,700 tons, slightly over 7%. No detailed statistics are available as to just where these quantities moved, but it is believed that Canadian producers captured most of the Japanese market in the latter half of the year.

Will Exports Take Up Slack?

The offshore shipments of the two producing nations, U.S. and Canada, must be watched closely as they are the major hope of the pulp producers for eliminating the gap between the new supply level and the current domestic consumption level. From 1950 to 1953 American exports climbed from 27,000 tons to 66,000 tons, but in the same period Canadian offshore shipments increased from 35,800 tons to 148,160 tons.

A careful analysis of supply and demand was made in this PULP & PAPER review for last year and it showed that if the rayon-acetate capacity known about that time would operate at 85% of capacity, the industry would consume 59,000 tons of woodpulp, and that if other consuming segments maintained their position relative to rayon, there would be available for export from the continent 468,000 tons. This figure actually represents surplus of supply over demand on a North American continent basis. Some surveys have placed this figure as

Every year, this exclusive feature is a highlight of PULP & PAPER'S ANNUAL WORLD REVIEW NUMBER. It is written by one of the most experienced observers of the dissolving pulp world.

It is very timely in 1954 as in this mid-year three of the most modern quality purified pulp producing mills of the world came into production almost "in a dead heat."

Even though in that short span of a few weeks, over 1,000 tons were added to U.S. supply of high alpha bleached pulps by Ketchikan Pulp, Rayonier and Buckeye Cellulose, the writer indicates a possible situation by 1958 or in the late '50's when North America will need more pulp mills!

With ample pulp, apparently, today, it may seem amazing to foresee in a few short years a need for more. Yet industry forecasts and plans, as a matter of fact, since before World War II have always been too conservative—the record shows it has been steps behind the actual surprising rate of growth in demand. Population growth, new pulp uses, etc., inevitably appear to be calling for more and more fiber.

TABLE II

U. S. PURIFIED WOODPULP IMPORTS

(By country of origin—Short tons)

	1948	*1949*	*1950*	*1951*	*1952*	*1953*
Canada	224,942	149,801	229,102	225,836	220,010	254,232
Sweden	9,080	3,888	2,177	3,683	2,240	712
Finland	3,718	———	158	———	———	———
Norway	2,101	———	1,021	475	307	837
Others	———	———	1,398	94	770	———
TOTAL	239,841	154,348	238,856	230,088	223,337	255,781

Source: U.S.P.P.A.

TABLE III

NORTH AMERICAN PURIFIED WOODPULP

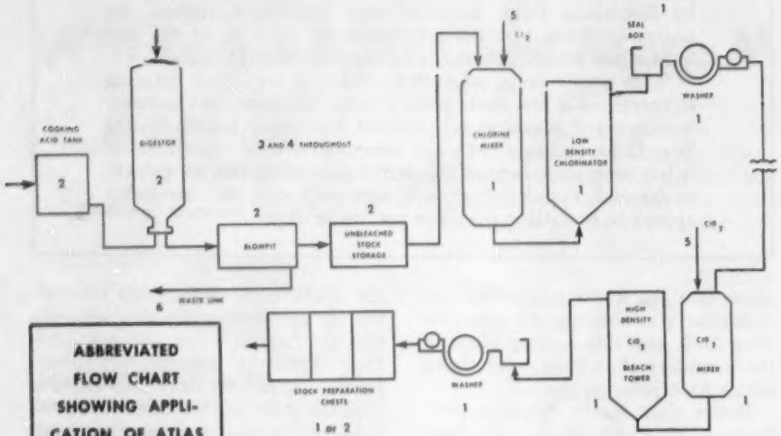
(Short tons)

Year	*Production*	*Imports*	*Exports*	*Net Available*
1947	707,000	23,700	56,000	674,700
1948	754,000	14,900	80,400	688,500
1949	620,930	4,550	83,150	542,330
1950	796,312	9,745	83,149	722,908
1951	1,014,240	4,152	151,029	867,363
1952	1,129,400	3,317	181,471	951,245
1953	1,132,338	1,549	214,658	919,229

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low as 260,000 tons, while others have it as high as 525,000 tons.

These surpluses are not frightening in view of increasing populations and increasing uses of paper, but they indicate that the next few years will tax the ingenuity of sellers if these mills are to be kept operating at reasonable levels of activity. Considerable quantities of paper pulp will be made by these dissolving pulp mills over the next few years even with the most favorable export situation. Therefore, if exports can be increased, if paper grades are developed to take care of increasing market pulp demands, and if research opens new fields or new modifications, the year 1958 will see this segment of the pulp industry working into a balance on supply and demand. In all probability, as time passes, a little bit of each of these will take place but the main chance should be in basic research.

Competition Should Flourish

Competition, of course, will flourish, and if the American system of free enterprise works as it usually does, this industry will thrive on it. Some of the aspects of that competition will be interesting. In England and on the European Continent all three major producing areas will meet head on. The Scandinavians will have certain economic advantages arising from geography and established methods of handling currency problems. They have the tradition of the bilateral treaty with its moderate success behind them and they have the many-faceted assistance of their government which is vitally interested in the important woodpulp industry. The Canadians have the Commonwealth concept on their side in dealing with the important English market. All this leaves the American mill with no weapons except those of service, quality of product, and steady improvement of product through the application of research.

There is also the competition of process. Of the three new mills coming in, two of them are sulfate and one sulfite. The U.S. will now have three large sulfate dissolving pulp mills with a daily capacity of nearly 1,400 tons. Canada has none and Sweden two. There is still a great deal to be learned about the sulfate process as it is applied to the production of these purified pulps and the end use of the yarns made from them. So far this pulp has gone into the high tenacity and heavy denier yarns that are used for tire cord, belting, webbing, and other industrial products.

Quick Check List

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Flow
mercury-manometer type
"d/p Cell", force-balance transmitter type
float-and-cable type

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wet-and-dry-bulb temperature
relative humidity (hygroscopic type)
absolute humidity and dew point temperature ("Dewcel")

Liquid Level or Interface (in open or pressured vessels)
diaphragm type
bubble tube (purge) type
differential pressure type

***Load, Force, and Torque**

***Moisture Content (sheeted materials)**

Motion and Position Recorders

***Motor Load (Power)**

Operation Time Recorders

***Oxidation—Reduction Potential**

***pH (with Beckman glass electrodes)**

Pressure, Absolute Pressure, and Vacuum
spring and hydron types
differential type
*electric pressure cell types

***Resistance (Electric)**

***Speed (R.P.M. or Lineal)**

Temperature
filled-system types
resistance bulb ("Dynalog" electronic and galvanometer types)
thermocouple ("Dynalog" electronic and galvanometer types)

***Tension**

***Thickness (sheeted materials)**

***Viscosity**

***Voltage, Current, Impedance, Dielectric**

***Weight (sheeted materials in process)**

***Weight and Force (strain gauge type)**

*with Dynalog Electronic Instruments

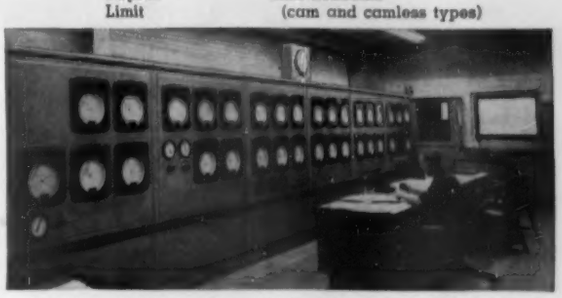
CONTROLLER TYPES

Pneumatic
Model 40: On-Off
Proportional
Proportional with Derivative
Proportional with Reset ("Stabilog")
Proportional with Reset and Derivative ("Hyper-Reset")
Consotrol (Console/Graphic Panel Types): in all above control mechanisms except on-off
Model 41: On-Off and Proportional
Circular Case: On-Off and Proportional

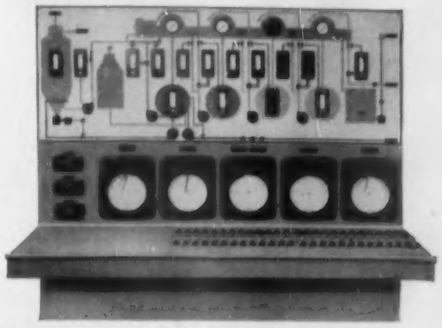
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Rotax (rotary contact type)
On-Off
Multi-Position
Galvanometer Type
On-Off
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Proportioning

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Complete Washer and Bleach Control Panel by Foxboro at S. D. Warren Company, Cumberland Mills, Maine.



Foxboro Graphic Panel for centralized control of brown stock washing at Gaylord Container Corp., Bogalusa, La.

THE FOXBORO COMPANY, 997 Neponset Ave., Foxboro, Mass., U.S.A.

Price-wise these pulps moved through another 12 months of stability, extending the period of the current prices for over three years. This was true in North America, but not so in Europe. There Scandinavian prices dropped during the year and did not firm until the fourth quarter, at which time they had an advantage over North American prices in Europe of about $20.00 per ton. Cotton linter pulp prices dropped during the year and at year's end the price line-up was:

Grade of Pulp	**Price*
Cellophane	$185 del.
Standard Viscose	$185 "
High-Tenacity	$195 "
Acetate	$225 "
Sheet Linter	$200 f.o.b.
Bulk Linter	$195 "

* All prices are per ton of 2,000 lbs. airdry weight, delivered or f.o.b. mill.

TABLE IV

Year	*Total Pulp*	*Woodpulp Consumed*	*%*	*Linter Pulp Consumed*	*%*
1930	63,850	45,000	62	27,000	38
1935	131,077	86,000	63	51,000	37
1940	235,585	178,000	75	60,000	25
1942	316,308	280,500	88	39,500	12
1944	361,977	285,000	78	82,000	22
1945	396,000	297,000	74	103,000	26
1946	427,000	323,000	75	105,000	25
1947	478,000	397,000	83	81,000	17
1948	539,500	435,000	81	104,500	19
1949	476,600	348,700	73	127,900	27
1950	590,600	456,200	77	134,400	23
1951	616,300	515,500	84	100,800	16
1952	549,500	484,700	88	64,800	12
1953	589,100	522,000	89	67,100	11

Source: Textile Organon

"From ingot to fourdrinier wire"



ANNEALING THE WIRES

Just as one alloy differs from another, so do their individual requirements for annealing vary. A definite ratio of speed and temperature must be used for each type. Skilled employees, tending our modern annealing furnaces, adhere faithfully to the proper speed-heat formulae so that your Eastwood wire will have the longest possible life.

Because the Eastwood-Nealley plant is a *completely integrated* one, every wire we ship has undergone thorough and continual analysis, control and testing from the raw metals to your finished fourdrinier wire ready for quality paper production.

We are proud to say they are *truly* ours—"from ingot to fourdrinier wire".

EASTWOOD-NEALLEY CORPORATION
Belleville, N. J.

As this is written, the second quarter prices for 1954 were known and there was still no indication of any change in this whole price structure. The woodpulp prices above were in effect since Jan. 12, 1951. This is the longest period in recent history where no change in price has taken place.

Cellulose Consumption

In *Table IV* are shown statistics for the consumption of cellulose by the primary consuming industry. Notice that the mix-up in statistics shows up here too. In *Table I* the figures show that the U.S. produced less in 1953 than in 1952 and *Table III* shows that for North America there was less net available by 31,000 tons. But in *Table IV* you will see that the rayon-acetate industry consumed 38,000 tons more than in 1952. The share which is woodpulp has moved up a notch to 89%, the highest to date.

The total cellulose consumed is still not as high as the record year of 1951 but the woodpulp consumed made a new mark in 1953. During that year the production of viscose and cupra rayon consumed a total of 481,000 tons of cellulose, of which 420,000 tons was woodpulp. This represents 80% of all the woodpulp consumed by this industry.

The acetate yarn produced required 108,000 tons of cellulose, of which 94% was woodpulp, and this is one of the striking developments in this business. From 1947 to 1952 the share of woodpulp in acetate was 68%, 65%, 55%, 61%, 71%, and 93%. Most of this swing is due to the Celanese change-over resulting from their mill at Prince Rupert, B.C. The future will probably see acetate yarns and staple go over to woodpulp as much as 98% to 100%. This would mean the loss of about 6,000 to 7,000 tons of business for cotton linter pulp.

This is not a startling loss for the bleachers of cotton linter as they have become reconciled to the

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There are many good reasons why mills everywhere are turning to Hercules Pexol®. This properly balanced fortified size brings reductions in size furnish . . . often as much as 30 to 50%! It saves size costs! It reduces inventories! It cuts freight and handling costs! And with all these advantages, sizing tests are maintained—often improved.

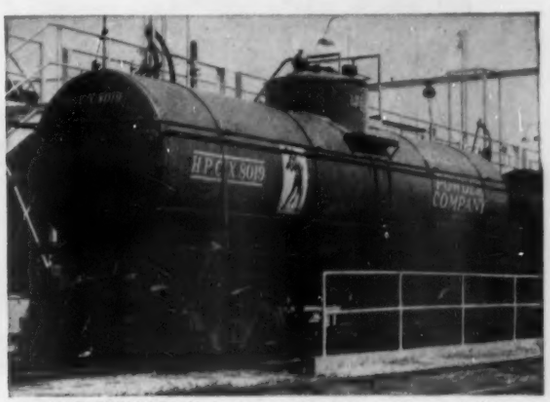
If you are one of the few who are not using Pexol, it will pay you to get in touch with your local Hercules technical representative now.



LEAKPROOF PACKAGES—Milk carton stock is just one of the increasing uses for Pexol in improving the serviceability of paper products. Hercules technical staff is at your disposal on problems of improving sizing and lowering costs.



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Paper Makers Chemical Department

HERCULES POWDER COMPANY

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situation but a stranger might conclude that it was a dying business. Some statistics from the other side do not help to clarify it either. *Textile Organon* has estimated that there was a production of cotton linter pulp in 1952 of 158,800 tons and in 1953, 200,800 tons. The cotton pulp consumed by rayon-acetate was only 33% of the total production. In 1952, a lower production year, rayon-acetate consumed 41% of the production.

A good question is: Where is the cotton linter pulp going? There were 47,000 tons more produced and only 3,000 tons more consumed in rayon-acetate. The only answer lies in government orders for propellants. It can be seen that most of the cotton pulp is now going into viscose where it is used for blending with woodpulp for the production of high-tenacity yarns, particularly tire cord. The sulfate woodpulp producers are striving for this market and nylon is moving into the truck and heavy duty tires but it is still a luxury cord.

TABLE V

U. S. Rayon-Acetate Production by Types
(Short tons)

	1949	*1950*	*1951*	*1952*	*1953*
Viscose & Cupra-ammonium Filament	272,150	313,500	329,050	297,250	328,800
Acetate Filament	127,500	163,500	150,050	117,150	114,650
Viscose staple & tow	64,900	94,500	103,650	105,900	109,550
Acetate staple & tow	32,350	58,500	64,350	47,600	45,450
Total	496,900	630,000	647,100	567,900	598,450

(Does not include rayon waste)
Source: Textile Organon

Growth of Tire Cord

Tire cord has been the only important growth division of the rayon-acetate industry. Production was about 412 million pounds in 1952 and reached 453 million pounds in 1953. It has shown a steady growth of about 25 million pounds a year, except in 1952 when it jumped 80 million pounds over 1951. This very rapid growth depends on two factors: the increasing production of tires and the greater proportion of the cord business which rayon has been able to capture. In 1953 it is estimated that rayon had gained about 92% of the total cord business. Based on this trend and the approach of saturation, one economic group has forecast a relatively stable consumption of woodpulp by the rayon industry for 1954 and '55.

This opinion was partially verified by a capacity survey completed in the fall of 1953 of the United States of all synthetic fibers. This survey reveals that expansions of capacity in rayon and acetate have leveled off from their rates in past years. For the high tenacity, viscose rayon yarn, the capacity as of November of 1953 was 246,500 tons and was expected to increase to 260,000 tons by July of 1954. For the regular and intermediate tenacity rayon yarn, the capacity was 133,500 tons and by July of 1954 it is expected to be 136,000 tons. This forecast of capacity shows a reduction of 7,000 tons over one made in the fall of 1952 as being expected for July of 1954. For acetate filament yarn the capacity was 196,500 tons and no expansion is contemplated presently.

At the time of the survey the capacity for rayon staple and tow was 162,000 tons and by July of 1954 this is expected to be 181,500 tons and there is no further forecast of increasing capacity. For acetate staple and tow the November 1953 figure was 8,500 tons and no further in-



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So, wherever you place your emphasis, the Deculator may be the answer to greater realization of your objectives. We'd like to tell you how the Deculator is paying its way and paying a profit in many other mills.

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Bronxville, N. Y.

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FULL 1-YARD SHOVEL-CRANE

with Speed-o-Matic® power hydraulic control!

Now, for the first time in the heavy duty 1-yd class, you can buy a machine combining unsurpassed productive capacity and maneuverability with practical transportability. In fact, an LS-98 with Speed-o-Matic control gives you the greatest productive capacity of any shovel-crane conveniently transportable over most state highways.

Two years of rugged field testing proved the LS-98 outstanding from both productive and service cost standpoints. It's an ideal machine for widely scattered operations as well as for big production jobs. Fully convertible, the LS-98 is your answer to handling more work at less cost.

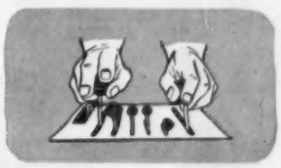
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LINK-BELT SPEEDER CORPORATION
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It's the industry's MOST ADVANCED shovel-crane

Included as standard equipment are foolproof power steering and independent rapid boom hoist. These and many other advantages enable you to secure greater output at lower cost.



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DESIGNED FOR FAST DISMANTLING and HIGHER OPERATING SPEEDS . . .

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Now Available Nationwide



* E. H. Tidland, 40-year veteran with Crown Zellerbach Corp. and Pacific Coast Supply Co., pioneered his new shafts four years ago. After exhaustive tests under every conceivable mill condition, the shafts are now being marketed coast to coast.

Tidland pneumatic shafts were designed on the job to solve three specific problems: (1) costly delays from dismantling troubles; (2) shaft deflections that reduce winding speed, and (3) damage to paper.

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crease is forecast for that.

On an over-all basis, the industry's annual capacity in the fall of '52 was 485,500 tons. As of November of 1953 it was 542,000 tons, and this survey indicates an expected increase of 7% to a total of 577,500 tons by July of 1954.

Table V gives the production of rayon-acetate by process for several recent years. Acetate material is still down but the viscose production is up with staple and tow making a new high.

Cellophane Consumption

Cellophane is the second largest consumer of purified wood cellulose and it continues to expand. It is estimated, and this is a guess by the author, that in 1953, 165,000 tons of woodpulp were consumed in cellophane. Total annual capacity is about 180,000 tons of pulp consumption. Most of this film today is going into the packaging of tobacco products, perhaps 50% of the production. The balance is spread around in a myriad number of packaging uses, most important of which is bakery goods and the pre-packaged meat now sold in self-service markets.

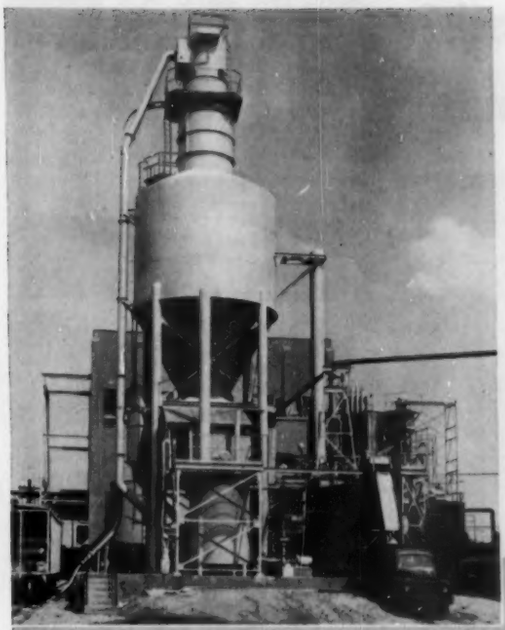
The development of the self-service store with its display of products has become very important to these two industries, and as they increase in the shopping centers now being built, the use of transparent film to display the products will increase. Olin Industries evidently believe this to be true as they have announced the construction of a new plant in southern Indiana.

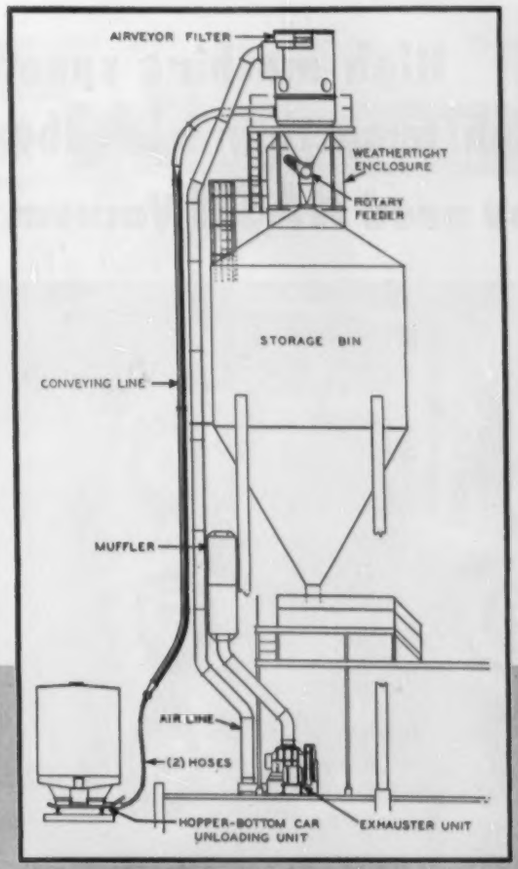
The use of cellophane in the home has not been pushed, to the writer's knowledge, in the way that waxed paper has. Glassine has never gone after this market either, but today the housewife can have in her kitchen—for wrapping foods for preservation or for use in cooking —waxed paper, two weights of alu-

TABLE VI

Cellulose Uses—1953
(Thousands of short tons)

Net available for No. America	920
Decrease in producers' inventories	4
Decrease in consumers' inventories	24
Total available	948
Consumed in Canada	45
In-transit shipments	15
Balance available for U.S.	888
Rayon-acetate	522
Cellophane	165
Balance for other uses	201
Cell. plastics incl. nitrocellulose	85
Misc. viscose (sponges, caps, bands)	8
CMC	4
Other derivatives	13
Sanitary napkins and absorbents	18
Vulcanized fibre and floc	15
All grades of paper	58





AGAIN . . .

Mead Corporation installs The AIRVEYOR

Flowing mill-supply chemicals, such as lime, soda ash, salt cake, starch and clays with the Airveyor—unloading cars to storage or in-plant conveying—is the simplest, most economical conveyor for your plant.

Mead Corporation has learned from experience that it pays to use the Airveyor, having continued to install such equipment wherever possible and practical, until today in four of its plants, nine such systems are in use. One of the most recent installations is that for unloading lime from cars to storage, at rate of 15 tons an hour, in the Chillicothe, Ohio plant, shown by photograph and drawing above.

The paper industry has learned by experience that the Airveyor is engineered and built for superior performance . . . well over a hundred systems have been installed in various mills in the United States and Canada.

If you have a problem in your handling of mill-supply chemicals, why not let us make a study of your layout . . . chances are we may be able to show you a more efficient and profitable method of operation . . . such a study costs you nothing, obligates you in no way.

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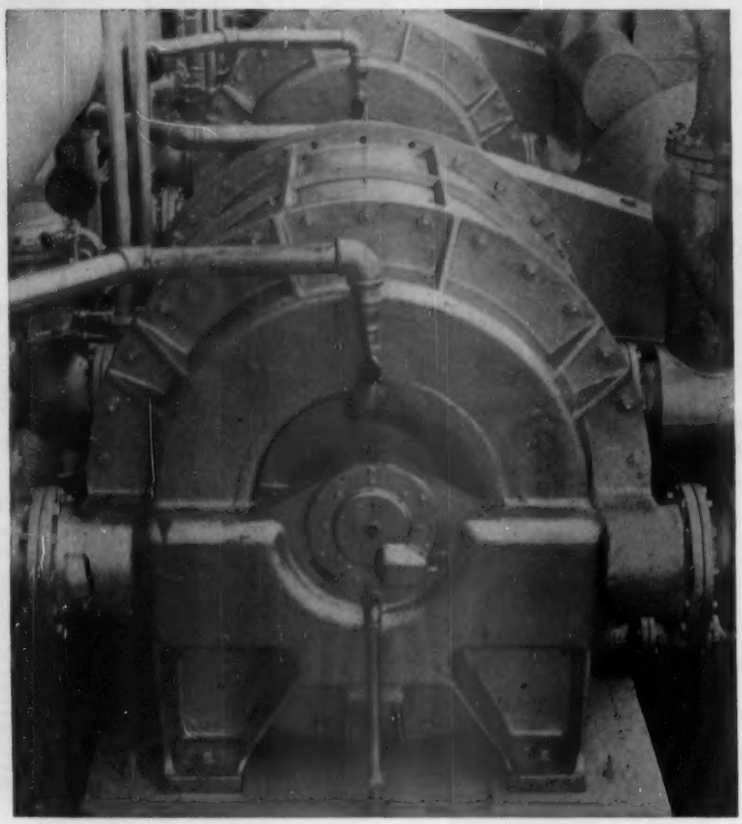
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High machine speeds? High temperature headbox stock? You need NASH Vacuum Pumps!



Air from the suction rolls on paper machines carries with it substantial quantities of moisture. This considerably reduces the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump, because of the unique principle of operation, the bulk of this vapor is effectively condensed inside the pump. The total capacity of a Nash is therefore increased.

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minum foil, and a new product put out by Dow Chemical called Saran-Wrap. This latter is also a transparent film but is of a synthetic base.

The same can be said for polyethylene, the fastest growing synthetic in this field, as it is now being used for packaging many things that were formerly packed in paper, such as potatoes, onions, and tomatoes. Again, the influence of display in the self-service stores.

Other Consumption

The balance of the consumption of dissolving woodpulp is spread over a wide range of diversified products where no statistics exist and where it is difficult to determine whether usage is increasing or not. The plastics are lumped together and film is excluded; the derivatives are reported on several different bases and only estimate and guess can be used to determine the quantities of woodpulp consumed. Regarded as plastics are cellulose nitrate, cellulose acetate, butyrate, ethyl and methyl cellulose. Statistics for these are reported in pounds and include fillers and plasticizers.

Sometimes these materials form over half of the plastic and sometimes they are not used at all. The statistics regard carboxymethyl cellulose and ethylhydroxy cellulose as synthetic organic chemicals. There are still no figures for the latter, but CMI is reported as 7,845 tons in 1950; 8,350 tons in 1951, and 7,050 tons in 1952, the latest figure available. In this table are Tariff Commission Reports for the cellulose plastics:

Cellulosics	*1951*	*1952*	*1953*
Acetate	48,708	42,724	57,285
Nitrate	3,805	3,010	3,800
Other	5,972	3,326	3,136

(*Figures above represent short tons*)

The acetate figures include sheets, rods, tube, and molding powder. The figure also includes the mixed esters, butyrate, propionate and the combination. There are no figures for the amount of cellulose nitrate that goes into lacquers and finishes of various kinds and the reports do not make clear if photographic film is included in the acetate figure.

Table VI is an attempt to strike a balance on the various consuming segments of this pulp. Since the material ranges over such wide industrial use and falls into such different industries as sanitary napkins and vulcanized fibre, these figures are a mixture of genuine statistics, guess of the author, and guesses of those in the industry.

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Used in your saveall, the unique colloidal action of Swift's NEW PROCESS Glue can be quickly noticed. Clearer effluents, higher recovery mean savings in stock, water, time, labor and money that help your saveall pay dividends.

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Swift's NEW PROCESS Glue, used to help retain valuable titanium dioxide and clays on the sheets . . . fiber and filler on the wire, is as effective as it is economical. Its unusual crystalline structure quickly absorbs water. Its high colloidal action goes to work *instantly*, even when used at low concentrations, to improve brightness and opacity . . . to aid in the production of denser, smoother and more uniform sheets and deeper colors.

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Big Increase in Paper Use for Frozen Foods Indicated in Exclusive Report

U. S. PROCESSED FOOD PACKS*

	Canned Foods (Million Cases)		Glassed Foods (Million Cases)	Dried Foods Fruits, (Million tons)		Frozen Foods (Million Pounds)	
	Fruits, Juices Vegetables	All Other Canned		Vegetables and Nuts	Eggs, Milk	Fruits, Juices, Vegetables	Eggs Fish, Specialties
1936	173	136	79	1,227	122	92	279
1939	191	160	85	1,529	151	213	360
1941	264	223	114	1,675	229	319	484
1943	284	180	188	2,390	455	496	659
1945	321	235	233	1,672	483	749	699
1946	370	235	235	1,762	484	985	717
1947	311	244	240	1,879	464	729	668
1948	300	255	207	1,909	448	1,041	677
1949	308	245	186	1,891	568	1,171	664
1950	328	261	225	1,511	549	1,412	716
1951	373	265	230	1,724	430	1,636	735
1952	350	265	245	1,623	460	1,941	720
1953**	352	263	265	1,674	NA	2,311	711

* *Source: WESTERN CANNER & PACKER, Miller Freeman Pubn., affiliated with PULP & PAPER.*
** *Preliminary. NA: Not Available.*



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THE FROZEN FOOD DIVISION of the United States processed food industry was the only branch which showed a major change in production in 1953 as contrasted with 1952, and hence was the only one whose consumption of fiber cases, cartons and films was materially altered this past season.

Packers of frozen fruits, vegetables and juices all increased their output in 1953, the aggregate gain being 19%. Fruit packs jumped more than one-fourth, vegetables were up nearly 10%, and juice concentrates climbed about 11%. Frozen specialties and eggs also gained, but fish packs were sharply reduced.

Food canners held their 1953 production to approximately the 1952 level, although there were variations in the individual items. The output of the seasonal canned fruits, vegetables and juices showed a small gain this past year, but there was a like decline in the outturn of other canned foods.

Glassed food packs continued their steady gain in 1953, the increase being due in considerable measure to greater diversification.

Seasonal dried foods, in total, showed a gain of 3% in 1953 over the 1952 figures. Fruit and nut packs declined, but the drop was more than compensated for by larger operations in dried beans and peas.

Usage of fiber packaging materials by the processed food business in 1953 closely followed the pattern of 1952. Canners and glassed food packers continued to cater to the smaller family unit by stressing the small tin or jar sizes, and by assembling their packs in greater proportions in the 24-unit rather than the 48-unit or larger fiber cases. Dried food firms carried on further promotions on behalf of consumer-size packages--cartons and bags—while still selling important quantities to manufacturers in larger containers. Some 20 million more pounds of frozen fruits, and 90 million more pounds of frozen vegetables, were put up in consumer units than was the case in 1952.

The market and crop situations indicate that 1954 will not see any major changes in the output of United States canned foods, in total.

This report is an annual exclusive feature of this WORLD REVIEW NUMBER, *prepared by* Western Canner and Packer, *a Miller Freeman publication and a companion journal of* PULP & PAPER. *Details of the production of processed foods in 1953, and similar data, are found in the accompanying table.*



A Good Reputation *TRAVELS FAST*

A service-proved reputation for outstanding performance is a contagious type of fast-traveling news that results first in acceptance and then – in preference.

The C-E Recovery Unit enjoys such a reputation. In the years 1950 and 1951, when the industry was greatly expanding its pulping operations, orders for approximately 5,000 tons of recovery unit capacity were placed with C-E. These orders were placed by sixteen leading pulp mills in ten states and in Canada. Six of the sixteen mills were *new* C-E customers.

In the years 1952 and 1953 – a time when the industry's immediate expansion plans were near completion, *C-E received orders for approximately 3,000 tons of recovery capacity* from ten more of the world's leading mills. *Of this number all but two were new C-E customers.*

Not alone do old customers keep coming back for more, but as might be expected, the outstanding reputation of the C-E Recovery Unit has indeed traveled fast and has resulted in a preference for C-E equipment – among new customers as well as old.

B-762

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Two new instruments using flow of air to measure porosity and smoothness, are meeting very favorable acceptance in the paper industry. Complete specifications, prices, delivery and special 60 DAY PROVE-BY-TRIAL-PLAN, are now available.

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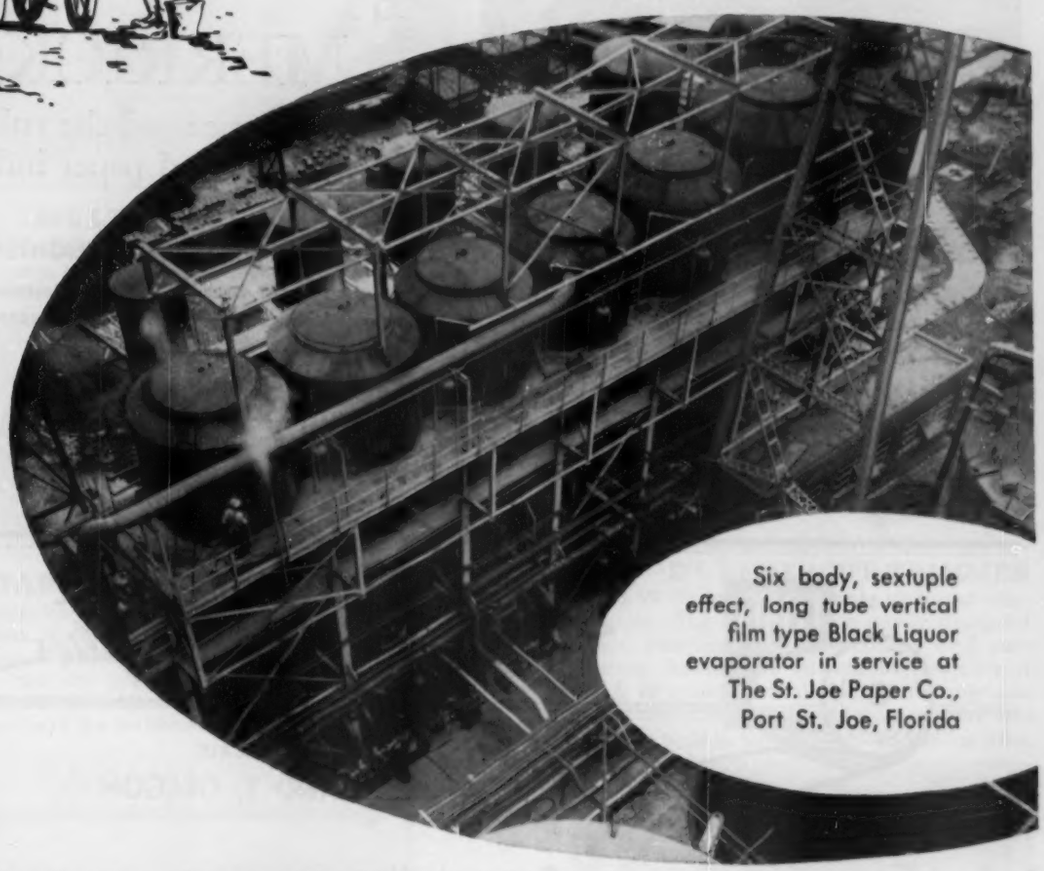
The Sheffield Corporation, Dayton 1, Ohio, U.S.A.

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Longer Runs between "BOIL OUTS"!



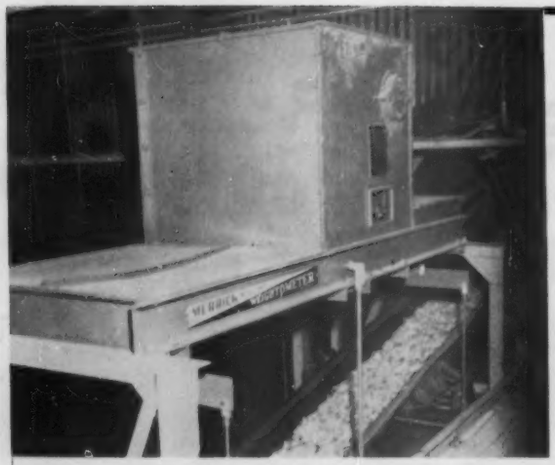
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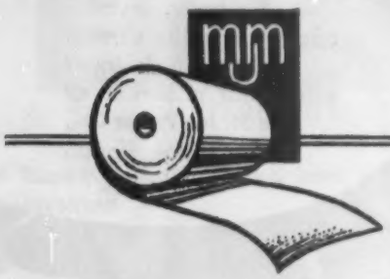


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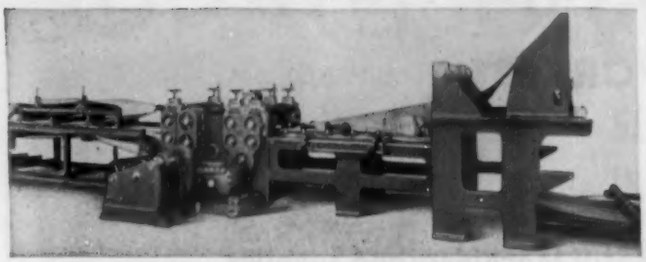
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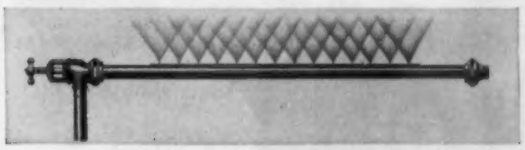
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For the production of single and multi-wall valve notch tubes for sewed valve type bags. Machine built in 2 sizes, 20" and 26" face; tubes, 26" to 50" long.



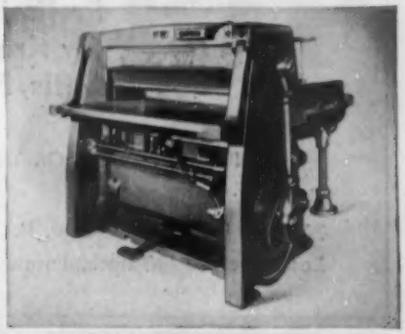
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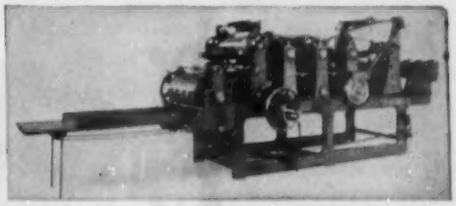
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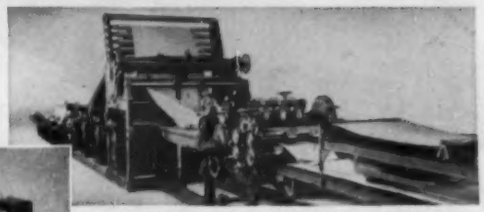


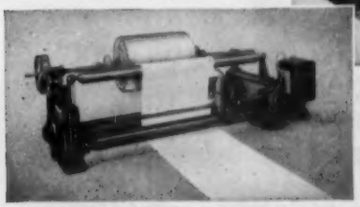
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S & W Bottomers are designed for high production and minimum spoilage with many new features for lowering bag production costs. Bottomers are made in several sizes. Produce standard satchel or narrow valve bottom.

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Fully automatic electric eye, side register control or web feed. Manual control can be supplied.





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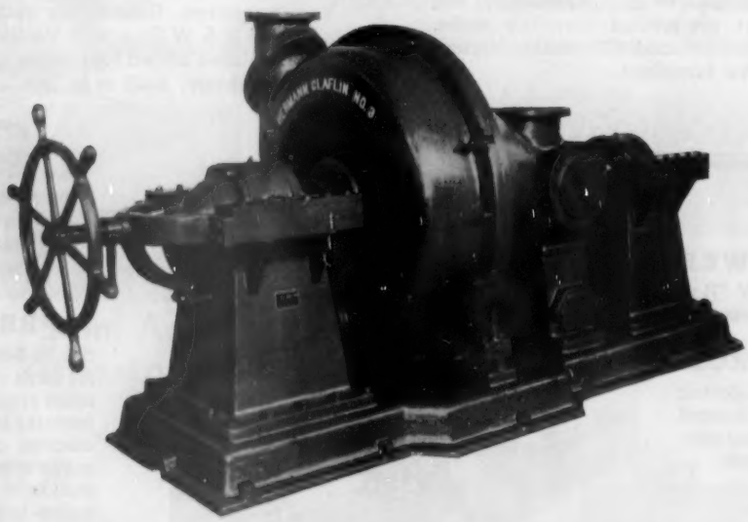
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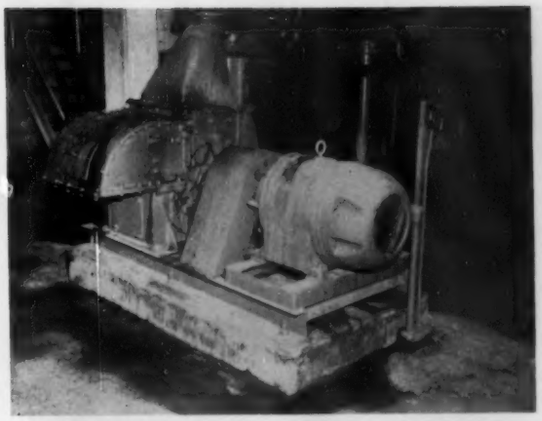
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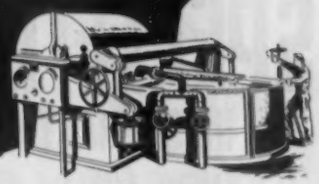
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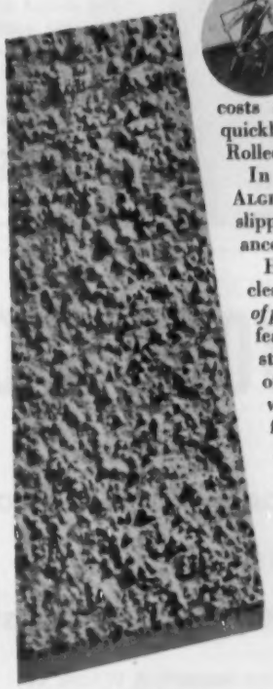
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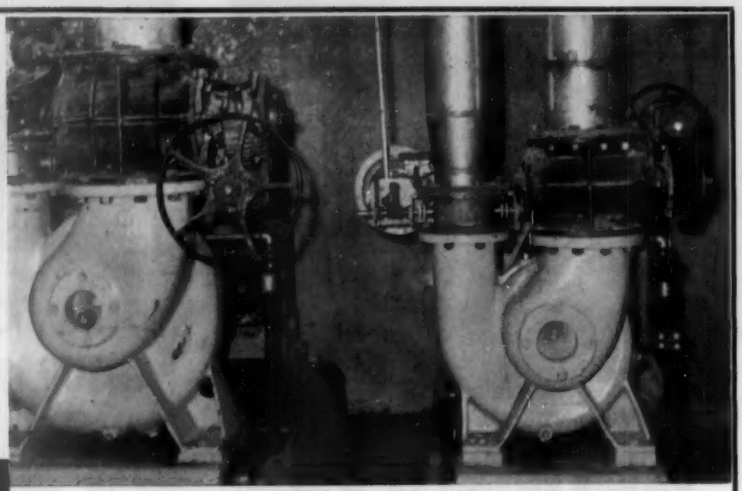
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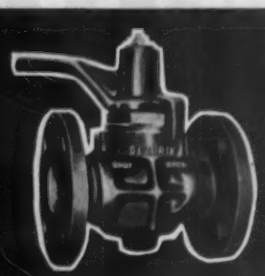
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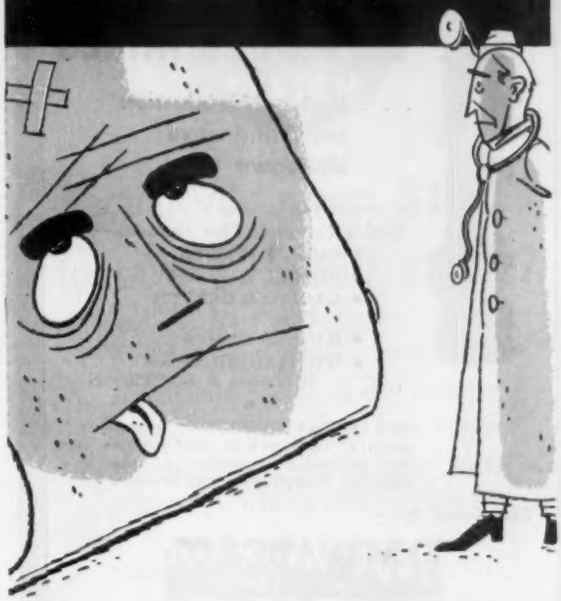
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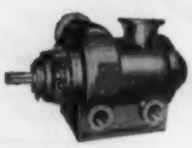
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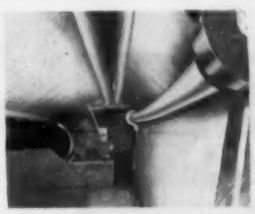
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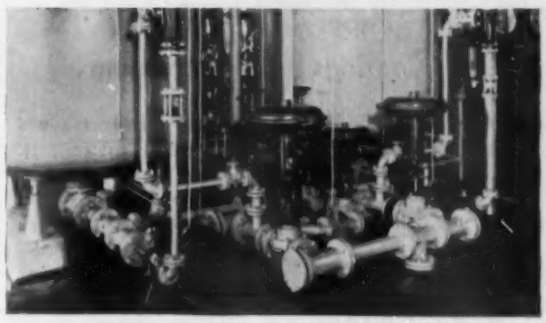
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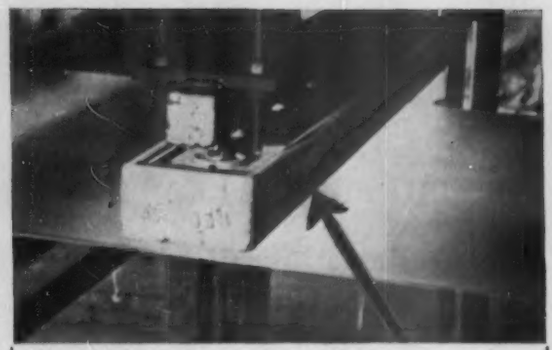
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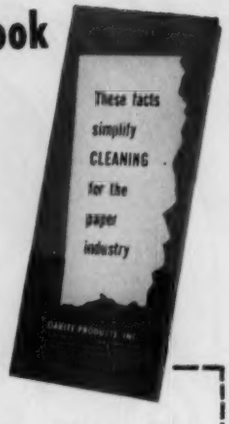
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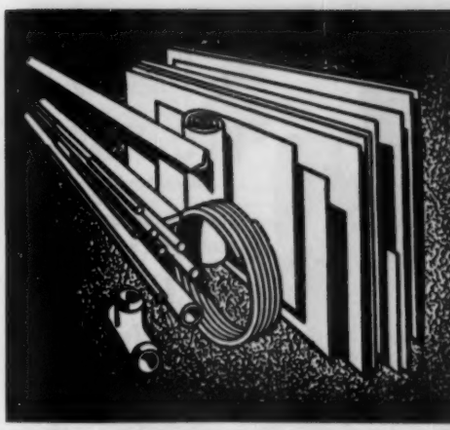


Sutherland High Yield Kraft System*



SUTHERLAND REFINER CORPORATION
TRENTON 8, NEW JERSEY

* U.S. Patent No. 2,591,106



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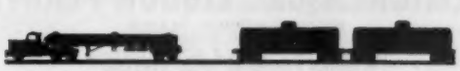
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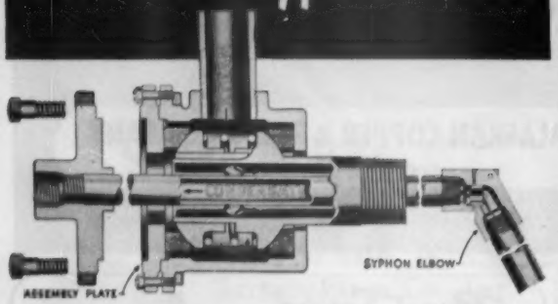
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